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# The Sibling Experience: A Comparative Study of Relationship and Birth Order Factors in Predicting Personality Characteristics

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# THE SIBLING EXPERIENCE: A COMPARATIVE STUDY OF RELATIONSHIP AND BIRTH ORDER FACTORS IN PREDICTING PERSONALITY CHARACTERISTICS

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## ABSTRACT

The two purposes of this research were: (1) to develop an instrument, the Sibling Relationship Questionnaire (SRQ) to measure retrospectively childhood feelings towards siblings and (2) to assess the power of the SRQ in statistical prediction of personality characteristics, as measured by the California Psychological Inventory (CPI). The predictive power of the SRQ was compared by multivariate analyses to that of birth order variables. The principal personality features investigated were need for achievement, need for affiliation, conformity, sociability, and sex-role orientation.

In Study 1 a pool of items regarding childhood sibling relationships was submitted to a sample of 255 undergraduate students (75 males and 180 females) and was factor analyzed. The six factor scales derived were Companionship, Loyalty, Hostility, Identification, Caretaking, and Rivalry. The items composing these scales were used to construct the SRQ. In Study 2 the SRQ was administered to a sample of 141 undergraduate students (70 males and 71 females), along with the CPI and a questionnaire designed to obtain demographic and birth order variables.

The six-factor structure of the SRQ was

cross-validated in Study 2. Most powerful of the SRQ scales in predicting personality were Hostility and Rivalry, being positively related to need for achievement and conformity. Hostility was positively related to social tolerance, but negatively to sociability. Rivalry interacted with birth order variables in predicting sex-role orientation. Subject's sex was a powerful predictor of personality, with females higher in need for achievement, conformity, sociability, and feminine sex-role orientation. Among birth order variables, sex of the closest-in-age sibling had significant predictive power, as did number of younger sisters and brothers. Generally, SRQ scales were more highly associated with need for achievement than were birth order variables, which were better predictors of need for affiliation and sex-role orientation. A further important finding was that sibling loss was negatively related to need for achievement and sociability, but positively related to need for affilation. The importance of examining in future research both the emotional components of sibling relationships and the total sibling structure of the family is discussed.

# CHAPTER I

## INTRODUCTION AND REVIEW OF THE LITERATURE

After a long period of relative neglect, the area of sibling relationships has recently become the focus of much scientific research and theorizing. The importance of sibling relationships has long been recognized by humankind in myth, folklore, and fairy tales. For example, the Biblical story of Cain and Abel and the fairy tales "Hansel and Gretel" and "Cinderella" all portray various aspects of sibling relationships. Social scientists have now begun to devote close attention to these relationships and have attempted to understand their complexity and their impact upon personality. This blossoming of interest and study is to be welcomed. Irish (1964) pointed out the dearth of empirical research on interaction between siblings. He noted several impediments to the study of sibling relationships, including Western society's focus upon parent-child relationships, and the many methodological problems involved in sibling research. Nonetheless, he concluded:

> A more adequate understanding of the socialization processes within childhood requires research concerning sibling interaction. The influences of brothers and/or sisters upon each other . . .need recognition and examination as

> significant factors both for personality development and social control (Irish, 1964, p. 288).

The literature discussed in the pages that follow indicates that this recognition and study have begun.

The contributions that have been made to the understanding of sibling relationships come from four basic sources. Birth order research has been conducted for at least the past 100 years, since the publication of Sir Francis Galton's English Men of Science in 1874. Next in historical sequence come the contributions of psychoanalytic investigators. Compared to the psychoanalytic literature on parent-child relationships, work on sibling relationships is limited in quantity, but it is nonetheless important. More recently, family systems theorists have also added significantly to the understanding of sibling relationships. Finally, in the past few years observational research on children has yielded rich data on the nature and impact of sibling interactions.

In the following pages, these four areas of theory and empirical findings will be reviewed and integrated. A model of the basic components in sibling relationships will be presented, and a proposed study of these components and their impact upon personality will be described.

## Birth Order Research

In order to discuss birth order research, it is necessary to examine the various factors that are involved in birth order. More recent studies in this literature have considered variables other than simple ordinal positions, e.g., first-born, second-born, and so on. It is also necessary to look at such factors as the sex of the subject, the sex(es) of his or her sibling(s), and the family size. Sutton-Smith and Rosenberg (1970) refer to all of these factors together as "sibling status". A commonly used system for referring to a subject's sibling status involves the use of letters and numbers. The letters M and F are used to denote gender, male or female. The order of sequence from left to right corresponds to the order of males and females in a family from oldest to youngest. A particular sibling is denoted by placing a number after his or her M or F. The number refers to this subject's ordinal position, e.g., 1 for first-born, 2 for second-born, and so on. As an example of this system, in a two-child family, there are eight possible sibling statuses for a child in the family. Using the system described above, these statuses could be designated as follows:

M1M - first-born male with a younger male sibling.

MM2 - second-born male with an older male sibling.

M1F - first-born male with a younger female sibling.

FM2 - second-born male with an older female sibling.

F1F - first-born female with a younger female sibling.

FF2 - second-born female with an older female sibling.

F1M - first-born female with a younger male sibling.

MF2 - second-born female with an older male sibling.

In a three child family, there are 24 possible sibling statuses, and the possibilities multiply geometrically as family size increases. These considerations of course complicate methodology. However, they are important to control, and there are ways of simplifying these considerations. Another important variable to consider in birth order is age-spacing between siblings. When researchers take into account all of these variables, their results are more likely to be significant and meaningful.

As noted above, research on birth order has been conducted for over 100 years. It is difficult to find a personality characteristic or human behavior that has not been investigated for its correlation with birth order. Earlier research was often of the survey type. A certain population was selected, and data gathered upon the frequency of various ordinal positions among the population. Research since the 1960's has been more experimental in nature (Sutton-Smith & Rosenberg, 1970). Persons of different birth ranks have been compared to each

other regarding personality traits or responses to a controlled situation.

Birth order research remains controversial because of its lack of consistent findings. In this section, the evidence regarding certain personality characteristics which have been most frequently investigated will be discussed.

## Achievement

Since this field of research began, it has been asserted that first-born children tend to be higher achievers than later-born (Sutton-Smith & Rosenberg, 1970). This area has probably received more study than any other in relation to birth order. Much of the early research on achievement and birth order was of the survey type described above. Galton (1874) found that first-born sons and only sons were over-represented among eminent English scientists. Numerous researchers have replicated this finding in survey studies of various high achieving groups (Gini, 1915; Schachter, 1963; Altus, 1967; Nichols, 1968; Toman & Toman, 1970). In these studies first-born children, especially sons, are found to be over-represented in these select populations. Altus (1967), in reviewing the literature and his own studies of birth order and achievement concluded, "In England and in the United

States, there appears to be an indubitable relationship of birth order to the achievement of eminence, however it has been defined" (p. 30). However, there have been some survey studies which failed to support the notion of higher achievement by first-borns. Datta (1967) found that being first-born was not related to early scientific attainment among young scientists selected from male high school seniors. Lunneborg (1968) found first-born superiority only in males. Kohn and Schooler (1969) found no significant birth order differences in intellectual functioning in a sample of 3,101 men.

There have also been numerous non-survey studies of achievement and birth order where persons of different sibling statuses are selected and compared on some measure of achievement, or need for achievement. A variety of criteria of achievement have been utilized in these studies, including projective instruments (Sampson, 1962), and self-report measures (Moore, 1964) of need for achievement. The results of these studies have been somewhat equivocal. However, Sampson (1965) and Sutton-Smith and Rosenberg (1970), after reviewing the literature in this area, concluded that there is some consistent evidence indicating that first-borns are favored in achievement motivation and attainment. Schooler (1972), however, reviewed the literature and concluded that

the research has failed to reveal any consistent pattern of relationship between birth order and achievement. He argued that positive results can be more parsimoniously explained on the basis of family social class.

## Affiliation

The study of birth order and affiliation owes much of its impetus to the work of Schachter (1959). He found that under conditions of high anxiety (waiting to receive electric shocks), only children and first-borns among college women showed stronger desire to wait with others than did later-born college females. The desire to be with others was interpreted as a desire to affiliate. The relationship between anxiety and the wish to affiliate decreased in strength the later the ordinal position of the subject. Schachter (1959) reviewed other birth order research in conjunction with his findings. He suggested that first-borns were more likely to seek the help of others when anxious, whereas later-borns were more likely to deal with anxiety in isolation.

Sampson (1965) reviewed research on the thesis that first-borns are more affiliative than later-borns. He found that in studies using projective instruments or questionnaires to measure need for affiliation, the results were inconsistent. However, in studies in which anxiety

was experimentally aroused, the anxiety-affiliation hypothesis was rather consistently confirmed. Sutton-Smith and Rosenberg (1970) reviewed subsequent experimental studies of the affiliation hypothesis and concluded that, despite some conflicting reports, the amount of confirmation was impressive. Rosenfeld (1966), on the other hand, reviewing his own research and that of others, concluded that "The many negative and paradoxical findings presented in this report certainly call for qualification of the general proposition that first-born persons surpass later-born persons in affiliative motivation" (p. 478). Schooler (1972) reached the same conclusion. There is thus considerable disagreement regarding the relationship of birth order to affiliation.

## Conformity

It has been asserted that first-born children are more conforming than later-born (Adler, 1959). In most of the research on conformity, subjects are asked to make a judgment on some task, e.g., matching a story to a picture (Corrigan & Julian, 1966), choosing a line which most closely matches another line (Becker, Lerner, & Carroll, 1966), in the presence of some type of peer pressure. Sampson (1965) reviewed the literature on conformity and birth order. He found that there was an interaction of sex

and ordinal position in many of the studies. For males, first-borns were more conforming, but for females, second-borns were more conforming than first-borns. He noted that there were some studies which indicated that first-borns generally were more conforming than later-borns, regardless of sex.

Sutton-Smith and Rosenberg (1970) felt that their review of conformity studies revealed a marked degree of confirmation of the hypothesis that first-borns are more conforming than later-borns. Of 18 studies they reviewed, 11 showed positive outcomes, while 7 failed to confirm more conformity in first-borns. However, they found that the results suggested a conformity effect for males only. Females were relatively more conforming than males in general. Others have disagreed with Sutton-Smith's and Rosenberg's conclusions. Bragg and Allen (1970) found that sex of subject and sex of sibling had an interactive effect upon conformity for later-borns, but not for first-borns. They noted that "It is exceedingly difficult to attempt to integrate and interpret past findings in this area, because of the severe methodological problems..." (p. 378). Despite Sutton-Smith and Rosenberg's (1970) positive conclusion, it is clear from the seven non-confirming studies they reported that considerable inconsistency exists in this area of birth order research, also.

## Sociability

Sociability can be defined as friendliness and interpersonal adeptness. Sampson (1965) noted that one might expect first-borns to be more sociable since they appear to be concerned with affiliation. However, he concluded in his review that this is not the case. Later-born children were usually found to be more sociable, in the studies he reported.

Bossard and Boll (1956) found that later-borns were rated as more sociable and well-liked. Sells and Roff (1963) found that only children and youngest children were rated as more liked by same-sex classmates than were first-born children. Middle children were least liked. Schachter (1963) found that later-borns were more liked than first-borns in fraternities and sororities.

Contradictory findings are evident in this area also. Koch (1956) found that first-born females were rated as friendlier than second-born females among a sample of school-age children. Alexander (1967) has criticized much of the evidence for greater sociability among later-born college students. He pointed out that later-borns are much less likely to attend college and thus represent a select group who are more similar to first-borns.

Sutton-Smith and Rosenberg (1970) in reviewing this area of research, noted that these studies have not controlled all of the relevant sibling status factors: sex of subject and sex of sibling have not been examined. They suggested that it was not worthwhile to speculate upon these birth order differences until such controlled research has been performed. In summary, there is not clear evidence for birth order effects upon sociability.

## Sex-Role Identification

This area of birth order research differs from other areas in that it has not focused as much upon simple ordinal position differences, but has examined the relationship of the sex of siblings upon sex-role identification. Sutton-Smith and Rosenberg (1970) reviewed this area. They cited a number of studies which measured sex-role preference in preadolescent and college populations through questionnaires regarding game choices, occupational interests, and personality inventories. They found evidence that each sibling is affected by the sex of the other sibling, and that the effect is more pronounced in younger than in first-born siblings. Much of the data suggested that this impact is direct. Thus in two-child families, girls with sisters were more feminine than girls with brothers, and boys with brothers were more masculine

than boys with sisters. The authors also suggested, though, that siblings may sometimes have a "counteractive" effect upon sex-role development. In three-child families, boys with two sisters scored higher in masculinity (Rosenberg & Sutton-Smith, 1959). Depending upon family size, sex of the sibling can have important effects.

The literature since Sutton-Smith and Rosenberg's 1970 review has been quite erratic. Leventhal (1970) found that men with older sisters were more masculine on the Femininity Scale of the California Psychological Inventory than were men with older brothers. These men were from two-child families. This finding directly contradicts the conclusion of Sutton-Smith and Rosenberg (1970). On the other hand, Farley, Hatch, Murphy, and Miller (1971) found no relationship of sibling sex and number to Masculinity - Femininity on the Minnesota Multiphasic Personality Inventory. Bigner (1972) studied sex-role preference in children and obtained results in accordance with Sutton-Smith and Rosenberg's (1970) findings: males with an older sister were more feminine than males with an older brother, while females with an older brother were more masculine than females with an older sister. Sex of the sibling did not affect the first-borns. Seegmiller (1980) measured sex-role differentiation in preschool children. Her results suggested that only children and children with

brothers were most sex-typed, while children with sisters or both brothers and sisters were least sex-typed. Somewhat contradictory to these results was the work of Lamke, Bell, and Murphy (1980) who used the Bem Sex Role Inventory to measure masculinity, femininity, and androgyny in college students. They found that the presence of older brothers increased androgyny (high masculinity and high femininity) in females. Androgynous males reported close relationships with their sisters, older or younger.

It is clear that in this area, too, birth order research has failed to reveal consistent, clearcut patterns of prediction. Some possible reasons for the inconsistency will be discussed below.

## Criticisms of Birth Order Research

Birth order research has been sharply criticized by a number of researchers (Jones, 1931; Baver & Folger, 1967; Schooler, 1972, 1973). Three major criticisms have been raised. First, the validity of the survey method of research has been questioned. Schooler (1972) pointed out that population trends such as fluctuations in birth rate and average family size can significantly affect the number of persons of a given birth rank in the population in general. Hare and Price (1969) noted that "an increase in the number of families started will result in an

over-representation of early birth ranks for every sibship size. A decrease in family size will result in an over-representation of early birth ranks in small sibships" (p. 647). Thus, a period of time wherein many small families are begun will tend to produce an over-representation of first-born and other early-born sibling ranks. Schooler (1972) also described the effects of socioeconomic status on survey type studies. He noted that larger family size is negatively correlated with increases in fathers' education. Therefore, a greater proportion of later-born children will come from working-class families. A greater proportion of first-borns will be from middle-class families. One would expect to find more people of middle-class origins among highly achieving groups. The prevalence of first-borns in these groups may be due to the prevalence of people from the middle-class in these groups.

The survey research on birth order and achievement is especially vulnerable to these criticisms. Schooler (1972) suggested that many of the studies which found first-borns to be over-represented among eminent populations are inconclusive because they failed to take population trends and socioeconomic status into consideration. First-borns may have been over-represented because they were over-represented in the general population in that time

period. Further, if middle and upper-class persons were prevalent in the select population, an over-representation of first-borns would be expected. Studies of birth order based upon actual comparisons of persons from different ordinal positions are not vulnerable to these criticisms.

The second major criticism involves the lack of consistent findings in this literature. Bayer and Folger (1967) asserted that "...contradictory findings...are reported in the scientific literature for virtually every birth order correlate discussed...perhaps the most compelling conclusion is the apparent inconsistency of results" (p. 37).

Given this inconsistency of results, the third criticism of birth order research is the paucity of theoretical basis to the research. Altus (1967), a contributor to this research, himself commented that "...the reasons behind the relations are as yet unknown or at best dimly apprehended" (p. 32). Schooler (1972) concluded that "Unless one is able to make very specific predictions on the basis of an empirically well-grounded theory, the general lack of consistent findings revealed by this review leaves real doubt as to whether the chance of positive results is worth the heavy investment needed to carry out any more definitive studies" (p. 174). Without a theory to explain the contradictory results, further

research on birth order statistics alone may only add to the confusion. More theoretical research is needed.

Some birth order researchers have attempted to propose intervening mechanisms which are responsible for birth order effects (Schachter, 1959; Sutton-Smith & Rosenberg, 1970). The effects have been most commonly attributed to different parent-child relationships with first-born versus later-born children. Schachter (1959), for example, explained his anxiety-affiliation theory on this basis. He hypothesized that the anxious, inexperienced mother of the first-born rushed to the child at any sign of discomfort. This, he speculated, conditioned the child to expect social comfort on the presence of distress or fear. On the other hand, with later children the mother was more relaxed, busier, with less need or ability to attend to each signal of discomfort. Thus, the later-born child learned to reduce tension on his or her own.

Sutton-Smith and Rosenberg (1970) hypothesized that both parent-child and sibling-sibling interactions produced birth order effects in different areas. They suggested that parent-child relations are responsible for the greater affiliative and achievement needs of first-borns. They cited research indicating that mothers are indeed more anxious, demanding, and inconsistent with their first-borns

than with later-borns. However, Schooler (1972) cited research that contradicted these findings.

Sutton-Smith and Rosenberg (1970) hypothesized that sibling-sibling interactions could explain some birth order differences, such as differences in sex-role identity and sociability. They suggested that younger children are more influenced by older siblings than vice versa, and thus, the sex of the older sibling will have more impact upon the younger than the reverse. They also suggested that the availability of the older sibling as a peer model may account for the possible greater sociability of the later-born child.

Although the results of birth order research are highly inconsistent, this line of research has led to the area of sibling interaction itself, an area which is the focus of much current research. In the following sections, the work bearing directly on actual sibling relationships will be discussed.

## Psychodynamic Theories

Early psychodynamic theorists devoted relatively little attention to the contribution of sibling relationships to personality development. Freud himself made only scattered reference to siblings in his writing. He usually discussed the sibling as the target of displaced

feelings towards the parents, e.g., as a substitute love object or an additional rival in the oedipal constellation. In the Introductory Lectures (Freud, 1916-17/1963), the attitude of a child toward siblings was described as fundamentally hostile and rivalrous: "There is no doubt that he hates them as his competitors, and it is a familiar fact that this attitude often persists for long years, till maturity is reached and even later, without interruption" (p. 204). He went on to note, "Quite often it is true it is succeeded or rather let us say overlaid, by a more affectionate attitude, but the hostile one seems very generally to be the earlier" (p. 204).

This hostility is provoked by competition for parental love and material possessions. Again, accentuating the negative aspect of sibling relationships, Freud (1916-17/1963) proposed that in dreams brothers and sisters are symbolized by "small animals or vermin" (p. 153). In Freud's view sibling relationships are inherently imbued with hostility based upon rivalry for parental affection and supplies. This basic dislike is affected by oedipal feelings. Thus, hostility may be intensified by displacement of competitive feelings towards the same-sex parent into the sibling. Alternatively, it might be mitigated somewhat by displaced love for the opposite-sex parent. The final outcome of the sibling relationship is

determined by the vicissitudes of the oedipal situation. The sibling relationship has no potential for an independent, positive contribution to the child's development. Oberndorf (1929) echoed much of this attitude toward sibling relationships in his paper on psychoanalysis of siblings from the same family.

Anna Freud tended to agree with her father on the topic of sibling relationships. Burlingham and Freud (1944), in their study on infants raised in an institution, noted that "Under the pressure of these circumstances they develop a surprising range of reactions: love, hate, jealousy, rivalry, competition, protectiveness, pity, generosity, sympathy, and even understanding" (p. 29). However, the authors stated that under normal family circumstances, such complexity among siblings' relationships does not occur:

> Brothers and sisters are taken into account for ulterior motives: for instance, as playmates and helpmates. But apart from these relations with them, love and hate towards them are usually not developed directly, but by way of the common relation to the parents. So far as they are rivals for the parents' love, they arouse jealousy and hate; so far as they are under the parents' protection and therefore 'belong', they

are tolerated and even loved (Burlingham & Freud, 1944, p. 23).

Alfred Adler took more of an interest in sibling relationships than did Freud. However, like Freud, Adler focused primarily on the rivalrous aspects of sibling relationships. According to Adler (1959), sibling rivalry had great impact upon the human personality, and this rivalry would differentially affect children in different positions in the family. He theorized that youngest children tend to have feelings of inferiority, arising from their position as smallest and weakest throughout much of their lives. They would thus tend to have very strong power strivings and would attempt to defeat all others, frequently becoming quite outstanding. On the other hand, the youngest child could become "cowardly", seeking to evade responsibilities, to avoid being put to the test. Oldest children would tend to be "guardians of law and order". They would value power, being generally the largest and most powerful children, and identifying most closely with the parents. Oldest children thus would tend to be quite conservative as well. Second-born children would be extremely competitive, always attempting to catch up to the first-born. These children would be envious and would have a constant feeling of being "slighted". The only child could become extremely dependent, "pampered",

and used to being the center of attention. Research attempting to verify Adler's ideas about birth order has been equivocal (McArthur, 1956; Greenberg, Mayer, Guerena, Pislonski, & Lashen, 1963; Altus, 1966).

Levy (1937) conducted a series of studies on sibling rivalry. In one, he studied the incidence of sibling rivalry in a sample of 10 children who were referred to a child guidance center for treatment. The referring problems of these children included rebellious behavior, feminine mannerisms in a boy, peer difficulties, and stealing. Only one of the children was referred primarily because of sibling rivalry. Levy (1937) investigated these children's feelings about their siblings through a play technique, involving a mother doll, a child doll, and a baby doll. He examined the types and intensities of hostility expressed in the child's play. Levy found that "maternal overprotection" tended to produce more overt rivalry. The more that the birth of a sibling disrupted the previous mother-child relationship, the more likely was hostility to the newcomer to be manifested overtly by the first child. Thus, the closer the mother-child relationship, the greater the disruption. One consequence of this is that children of later birth ranks, who would tend to have a less close relationship with the mother, would be less overtly rivalrous than earlier-born children.

While much of this earlier psychodynamic literature focused upon sibling rivalry, there were some writers who were looking at other sibling phenomena. One area which attracted interest is the special relationship between twins. Burlingham (1952) studied three pairs of identical twins. She found that being a member of a twin pair produced a number of problems. Mutual interdependency between the twins was common. There was a failure to completely differentiate from each other. Twins often suffered from incomplete self-representation. The author pointed out that some twins appeared to represent two sides of the same personality, which added together would make a well balanced whole.

Leonard (1961) discussed in detail the special problem in identification and ego development that may occur in twin relationships. She noted that there were four factors which influenced the amount of pathology that could occur in twins. The first was the cultural attitude. If this is positive, as it generally is in our culture, then sameness is emphasized, and this can hamper the twins' development as separate individuals. The next factor is the parental attitude. The parents may also, for the sake of convenience and efficiency, emphasize the sameness of the twins and encourage their identification with each other in order to lessen the burdens on the parents. On the other

hand, the parents can counteract this tendency by focusing on the differences between the twins and establishing separate relationships with each. The third factor is the amount of physical similarity between the twins. It is easier for the mother and for other people to relate to each separately if there are differences in appearance. Twins who closely resemble each other are more likely to be treated as a unit. They are more easily confused with each other by other people. The fourth factor is the family's socioeconomic status. Economic stress makes the twins' problems more difficult. The parents would have less time and energy to devote to the twins, and would be more likely to encourage identification with each other.

In addition to Leonard (1961), a number of other psychoanalytic writers have discussed the features of the "twinning reaction" (Joseph, 1961; Joseph & Tabor, 1961; Glenn, 1966). One major area of difficulty for a twin involves the establishment of an integrated self-identity. Twins frequently identify with each other rather than with the parents. Their identities are often fused, and there may be little encouragement toward differentiation. This leads to a continued "part fusion" of the self and the twin, and weak ego boundaries (Joseph, 1961; Joseph & Tabor, 1961; Glenn, 1966). Since the identification is with a child rather than with an adult, superego, or

conscience development may also be hindered. The superego will tend to be easily corrupted, and rather harsh and punitive. Another problem in superego formation is that the twin may think of him- or herself as "special", and not bound by conventional morality. In addition, the twins can turn to each other for gratification when disappointed by the parents. The gradual frustration of the pleasure principle needed to build up a strong ego and superego is not experienced by the child (Joseph, 1961; Joseph & Tabor, 1961; Glenn, 1966). The twin relationship is seen as highly ambivalent. The child depends on the twin and is deeply attached to him or her. At the same time, the child has great rage towards the twin, as a rival for parental attention. The twins may solve this problem of ambivalence in one of two ways. Through "inverted" identification, rivalry and anger are repressed, but personal identity is never established. Perhaps the healthier solution is "everted" identification, where each twin links him- or herself to one parent, while maintaining a strong tie to the twin. This solution requires the availability of two parents (Joseph, 1961).

The second central problem area involved in the twinning reaction is in relationships with others, i.e., establishing mature object-relationships (Joseph, 1961; Joseph & Tabor, 1961). Because of their intense

ambivalence towards their twin, expression of aggression may become a generalized problem. Twins tend to seek others with whom they can fuse and form a new twinship. They easily lose their sense of identity in relationships. They may be excessively dependent upon others for "narcissistic supplies", i.e., praise, admiration, reflection. All of these tendencies will likely create problems in interpersonal relationships.

In an important application of these ideas to non-twin siblings, Shopper (1974) wrote of the "pseudo-twinning" reaction. This can occur between siblings who are close in age or in any people who spend many years together, as in the case of spouses. Shopper noted that when siblings are close in age, two years or less, then rivalry may be intensified. At the same time, the parents may treat them as a pair. She suggested that the pathology resulting from a pseudo-twinship may be greater than that from an actual twinship. In the case of the pseudo-twins, greater pressure from the parents is involved, and a greater distortion of reality is required to produce the illusion of sameness. The author described the developmental problems in pseudo-twinships as similar to those of twinships, involving difficulties in identity formation, inhibition of rivalry and aggression, problems in

separating from the sibling, and lack of satisfactory relationships with other objects, especially the mother.

These studies on twinning reactions are important in the psychodynamic literature because they examined sibling relationships in more depth and detail than previous works on sibling rivalry. They indicated that twins, and possibly siblings in general, can play an important role in psychological development, including the formation of identity, of conscience, and relationships with others.

Another area of the psychoanalytic literature which has examined sibling relationships is the work on childhood sibling loss. Pollack (1972, 1978) noted that siblings can play an important role in development. He stated:

> ...siblings have many positive, growth-promoting, reality-testing, learning-facilitating significances for each other... Socialization, companionship, play, symbiosis, support, mutual aid and education, idealization, affection, communication, empathic contact, enjoyable interactions, obligations, aggressive outbursts, interests and many other aspects of living get tested, expressed and suppressed with siblings far more frequently than with parents (Pollack, 1978, p. 446).

Given this importance, children usually respond in a significant way to the death of a sibling. Pollack suggested that the response is not necessarily psychopathological. He hypothesized that sibling loss can play a role in later creativity, and illustrated this thesis in the lives of socially or artistically creative individuals. The creative product can represent a way of expressing and mourning the loss, or a restitutional object to replace the lost object, the sibling.

However, other individuals react to the loss of a sibling in a pathogenic manner. Berman (1978) reported a case in which the death of a sibling in childhood became the organizing force for a pervasive unconscious sense of guilt, a need for self-punishment, and a negative therapeutic reaction in psychoanalysis. This reaction was seen as a result of guilt over the patient's death wishes towards his sister, as well as towards his parents. Also contributing to the pathological reaction were conflicts relating to his parents, especially his mother. Pollack (1972) suggested that pathological responses result from unfinished or abnormal mourning processes.

This recent literature on sibling loss reflects increasing interest in sibling relationships in psychodynamic thinking. Siblings are increasingly seen as more than rivals for parental love and approval.

Winnicott (1957) was one of the first psychodynamic writers to discuss both the positive and negative feelings involved in sibling relationships. On the positive side, he noted the enrichment that siblings can add to a child's experience. Siblings may offer constant playmates. They provide the child with a variety of different types of roles and relationships through which the child learns about him- or herself and others. Winnicott also saw potential positive value in the negative feelings that brothers and sisters experience towards one another. Initial hate of the sibling was considered natural and expected, but was likely to give way to love as the child came to appreciate the sibling as another person. This experience of ambivalence towards the sibling Winnicott viewed as a beneficial experience. He also discussed the problem of the child's lack of opportunity for expression of aggression and hate. He stated, "Children who grow up together play games of all kinds and so have a chance to come to terms with their own aggressiveness; they have valuable opportunities for discovering on their own that they do mind when they really hurt someone they love" (p. 158). Thus, siblings provide experiences in learning to express and control aggression.

In a recent review of the psychoanalytic literature on sibling relationships, Holmes (1980) noted the increasing

attention given to this area. He suggested three ways in which sibling relationships may influence adult personality. First, the birth of a sibling may become a fixation point. Many conflicts and feelings may become organized around this event, e.g., feelings of rejection from the mother, oedipal jealousy, as well as sibling rivalry. Secondly, the sibling relationship may affect sexual identity, if there is excessive envy of opposite-sex siblings. Finally, the sibling relationship may provide a key to understanding the oedipal situation of a patient. Feelings for siblings can be displacements of feelings for parents. Holmes has found that the acknowledgement of sibling rivalry is helpful to psychotherapy patients. He concluded that "the arrival of a sibling...presents the child with a developmental challenge... he is now for the first time faced with an equal to whom he has mixed feelings" (p. 303). Siblings present a frustration to the child, yet they also present an opportunity for growth, for development of a "sense of equality" and "ability to share" (p. 304). Exploration of sibling relationships may thus be beneficial to psychotherapy.

Lesser (1978) discussed the usefulness of exploring sibling relationships in psychoanalysis. She noted that these relationships are often overlooked in analysis. However, they can be reactivated in the patient's

transference relationship to the therapist. Failure to recognize sibling transference may hinder treatment. At the same time, the therapist's counter-transference to the patient may arise from unresolved conflicts in the therapist's sibling relationships. Both the positive and negative aspects of these relationships need exploration in treatment.

Another direction of psychodynamic thinking which is relevant to consideration of sibling relationships, is the area of attachment theory. The work of Spitz (1965) and Bowlby (1969) on the effects of maternal separation in children has led to the concept of attachment. Attachment can be defined as the early bond between the infant and his or her caretaker, usually the biological mother. Attachment behaviors include such acts as maintaining proximity, contact, and communication with the mother. When separated from the mother for a prolonged period of time, children typically become severely depressed. There is some research indicating that siblings, too, may become objects of attachment. Meyendorf (1971) reported a case of infant depression due to separation from siblings. She speculated that the child's emotional needs may go beyond the mother figure. An observational study by Tiegel (1974) attempted to explore the responses of infants to separation from their siblings in a laboratory setting. The findings

suggested that sibling attachment is a valid phenomenon that can be differentiated from general sociability and from attachment to the mother.

The recent surge of interest in sibling relationships among psychodynamic theorists is reflected in the most recent volume of The Psychoanalytic Study of the Child (Solnit, Eissler, & Neubauer, 1983) which devoted an entire section to the sibling experience. In this volume, Colonna and Newman (1983) reviewed earlier literature. They noted that much of this writing focused upon the negative impact of the sibling experience, and its pathogenic consequences. They also noted the relative lack of study of the sibling relationship in its own right. Kris and Ritvo (1983) discussed the importance of siblings in drive development, ego development, and object relations. These authors also discussed the interactions of parent-child, parent-parent, and sibling relationships in their impact upon these areas of functioning. Neubauer (1983) agreed that siblings play an important role in development. He discussed the influence that rivalry, jealousy, and envy among siblings may play in character development and in the choice of a love object in adulthood. Provence and Solnit (1983) observed a family containing two children who were two years apart in age. Their purpose was to study the normative, progressive

developmental phenomena related to the sibling relationships, as opposed to the pathogenic factors focused upon in earlier literature. The authors discussed the negative feelings involved in the "normal" sibling relationship, e.g., rivalry, envy, and aggression. They also discussed the positive aspects of the relationship. These included intellectual stimulation, admiration, vicarious learning, empathy, and mutual support. The authors concluded that "the sibling experience ...becomes a powerful secondary stage on which children, directly and vicariously, have opportunities to rehearse as well as to act out the scenes of their inner lives. These sibling experiences also prepare children intellectually and emotionally for what lies ahead..." (p. 351).

It is clear that psychodynamic thinking on sibling relationships has progressed from a rather simplistic view of these relationships as predominantly rivalrous, or as mere channels of displacement for more complicated feelings towards the parents. There is increasing recognition of the importance of these relationships to personality development and to effective psychotherapy. Furthermore there is an increasing appreciation for the complexities of sibling relationships. Siblings can be hated and envied rivals, and they may also be objects of identification, dependency, and attachment. The ways in which these

various feelings are resolved or left unresolved may have a significant influence upon adult personality structure.

## Family System Theories

As in the psychoanalytic literature, sibling relationships were relatively overlooked in much of the early family systems theorizing. Bank and Kahn (1975) commented:

> Current theories of family interaction focus almost exclusively on the influence of parents on the psychosocial development of their children. Thus, family therapy has usually focussed on correcting the parenting process. Transmission from parents to children downward, less frequently upward from children to parents, is the cornerstone of most major family theories (Bank & Kahn, 1975, p. 494).

There have been exceptions to this rule, however, and family theorists are increasingly turning their attention to the "sibling subsystem".

One fairly early contribution to the understanding of sibling relationships in the family system was the work of Bossard and Boll (1956). In their book, The Large Family System, they described the results of interview research conducted with one hundred adult siblings from large (more

than six siblings) families. They obtained retrospective views of what it was like for these siblings to grow up in a large family. The majority of subjects felt it to have been a positive experience. They felt that the siblings had been fairer disciplinarians than the parents. In these large families, there was much emphasis upon the group, rather than on self, and issues of sacrifice and loyalty to each other over-rode sibling conflict and rivalry. Most of the subjects felt that siblings in large families have an important socializing impact upon each other.

Einstein and Moss (1967) discussed the importance and nature of the sibling system within the family. Based on clinical experience and interviews with siblings in family treatment, the authors examined some of the issues prevalent in sibling relationships. They first discussed the "feeling tone" of the relationships. They identified two dimensions of feeling tone: quality and intensity. The writers hypothesized that quality ranged along a continuum from affection and caring at one end, to hostility and aggression at the other. The intensity could vary from strong feelings to indifference. Eight critical issues in sibling relationships were described: (1) the wish to be similar or different, (2) feelings of superiority and inferiority, (3) dependence versus independence, (4) support versus devaluation, (5) rivalry and jealousy, (6)

sharing, (7) sexual behavior between siblings, and (8) alliances of siblings. The authors concluded that emotional ambivalence is very prominent in sibling relationships. They also noted that the presence of siblings can serve many functions for children: potential role models, persons with whom to learn to share, "generational" support, security, allies, competition. They suggested further research and attention to this area.

Minuchin, Montalvo, Guernez, and Schumer (1967), in their work, Families of the Slums, contributed a family systems perspective to examining sibling relationships in families in crisis. These were families in which the parents were unable to adequately care for their children, physically or emotionally. The authors described the tendency in these families for the siblings to turn to each other for parenting. Siblings received from each other appraisal, guidance, control, and direction. The sibling subgroup became cohesive and stronger to make up for the lack of adequate parenting. Thus, the sibling subgroup was a powerful force in families where parents had permanently or temporarily relinquished their nurturant and executive functions.

This theme has been repeated by other family therapists. Rosenberg (1980) wrote about therapy with sibling groups in reorganizing families. She gave case

examples of families who had recently suffered the loss of one or more of its members. In these cases, it was felt that the siblings could be of significant help to each other while the parents were emotionally unavailable. The treatment generally consisted of helping the siblings to resolve the conflicts and issues between themselves in order that the support and nurturance they could offer each other could become more accessible. The author noted, "Focus on the sibling group is particularly indicated when parents are unavailable or inadequate and the children have the capacity (through age and circumstance) to provide emotional 'anchoring' as well as other mutually supportive functions" (p. 148).

"Sibling therapy" was also advocated in some cases by Ranieri and Pratt (1978). These authors noted that siblings may be more willing to explore their relationships without the parents present. They are then free from fear of retribution from the parents. The sibling relationship is ideal as a place to learn about dealing with peers. Thus, resolving sibling conflicts will benefit the child in the extra-familial world. The authors stated that sibling therapy enhances family therapy, as it increases understanding of the family as a whole.

There has been some empirical work done from a family systems perspective. A series of studies by Cicirelli

(1972, 1973, 1975, 1976, 1977, 1980) attempted to compare the importance of the sibling subsystem to that of the parent-child subsystem in a variety of areas of functioning. Cicirelli conceptualized the family as an interactional system comprised of three subsystems: parent-parent interactions, parent-child interactions, and sibling-sibling interactions. The subsystems influence each other. In one series of studies (Cicirelli 1972, 1973, 1975, 1976), it was found that sibling interaction had an effect upon children's performance on cognitive tasks. There were complex interactions between age spacing, sex of sibling, and family size in these studies. Older sisters were more effective teachers than older brothers in aiding their siblings in the tasks. Children with older brothers did as well alone as with aid from sibling or mother, whereas children with older sisters showed more advanced problems-solving after aid by sibling or mother. Cicirelli suggested that children may be more willing to accept help from older sisters than older brothers. Older sisters tended to use more explanation, feedback, and verbalization, which were the techniques used more by mothers.

Cicirelli (1977) next studied the relationship between the sibling subsystem and the feelings and concerns of elderly people. The subjects' feelings and concerns were

measured by a projective instrument, and information regarding their sibling structure was obtained. It was found that for this population the number and proportion of female siblings had greater impact upon feelings and concerns than did male siblings. Men with sisters had more positive feelings and less concerns about aging than did men with brothers. Sisters were emotionally supportive for men. On the other hand, women with sisters had more concerns about social skills and relationships, but less negative feelings. It was concluded that for women, sisters were challenging in regard to social roles and activities. It was also found that for men and women having deceased siblings was associated with more concerns. The importance of sibling support was seen as important to the elderly.

Cicirelli (1980) examined college women's feelings about their siblings and their parents. Three categories of feelings were explored: (1) emotional support, (2) active help and advice, and (3) leadership function. He found that while the mother-child relationship was strong in all three areas, the feeling toward the sibling was just as strong in the area of emotional support. The mother-child or sibling-sibling subsystems were equally used when a "confidante" was needed. The subjects felt more positive towards their siblings than towards their

fathers in all areas except leadership functions. It seemed that sibling influence was greater than the father's influence at this stage of life. It was also found that close age spacings led to closer relationships, and that second-borns rated their siblings higher than did first-borns.

Together this research demonstrates empirical support for the relative independence and importance of the sibling subsystem in the family system as a whole. It also compares the relative strength of the sibling and parent-child subsystems in cognitive development and emotional support. While the mother-child subsystem appears to be strongest, the sibling subsystem certainly has an impact. Its importance continues for many people into old age.

Perhaps the greatest contribution on sibling relationships from the area of family systems theory is the work of Bank and Kahn (1975, 1982). These authors noted the lack of attention given to the sibling subsystems in family functioning (Bank and Kahn, 1975), and made a number of points regarding siblings. They first proposed that the sibling subsystem has a degree of "autonomy" in the family: "It is clear that parents supervise and monitor sibling relationships, but there is a limit to the influence of parents on the sibling system" (p. 500). They stated that

the sibling groups have their own set of "rules". The power relations of the sibling in the family may be different among the sibling group than in the family as a whole. There is wide variance in the amount of autonomy from the parental system of the sibling group. The authors note that often as children mature, the autonomy of the sibling subsystem increases.

Bank and Kahn (1975) also discussed the functions that siblings serve for each other, independently of the parents. They suggested that "identification and differentiation" occur in relation to siblings, in addition to parents. This can be observed in children's reactions to the departure or death of a sibling. "Mutual regulation" is another function of the sibling relationship. Siblings also provide "direct services" to each other, teaching skills, doing favors, lending money. The sibling subsystem functions as well in forming "coalitions" to deal with parents, e.g., supporting a sibling against parental criticism, serving as a go-between for parents and sibling. The authors discussed the ways in which siblings deal with disruptions in the sibling subsystem. They discussed the strong impact upon remaining siblings of sibling loss, through leaving home, marriage, and death. Loss of a sibling can mean loss of emotional support, and the other functions that siblings provide.

Bank and Kahn (1975) also discussed the reactions of "well" siblings to disturbance in a "sick" sibling. The healthier children may avoid the troubled sibling and detach themselves from the family. Alternatively they may side with the parents against the sick sibling, or they may side with the sick sibling. A fourth strategy is to act as a mediator between parents and the problem child, thus preventing real resolution of the family problems. Finally, the authors discussed their use of siblings in family therapy, to relabel family problems, to act as consultants, to assist in role-playing, to provide encouragement and support to the identified patient, and to facilitate working through of family tensions.

These authors have recently expanded their views on sibling relationships in their book, The Sibling Bond (Bank & Kahn, 1982). In this work, Bank and Kahn go beyond the perspective of family systems theory in an attempt to provide an integrative picture of the sibling relationship. Approximately 250 sibling "situations" were studied by the authors over a period of many years. Some of the relationships investigated came from therapy patients, others from consultations with other psychotherapists and colleagues. Some of the data came from interviews with persons who were not in therapy, but were volunteers from college campuses and various organizations. Nearly 100

cases were videotaped. About one-fifth of the interviews were conducted in the subjects' homes. The authors described themselves in the research as an "amalgam of field investigators, psychodynamically oriented therapists, family systems researchers, historians, and, at times, investigative reporters" (p. 18).

> Bank and Kahn (1982) defined the "sibling bond" as:
>
> ... a connection between the selves, at both the intimate and the public levels, of two siblings; it is a 'fitting' together of two peoples' identities. The bond is sometimes warm and positive, but it may also be negative. Thus, for example, rivalrous siblings who hate each other can be considered to be 'bound' if their identities have any influence on one another (Bank & Kahn, 1982, p. 15).

They noted that the intensity of the bond changes. There are periods when the relationship is vital and intense, particularly during childhood and adolescence. During early adulthood, as the siblings leave home, the bond may become dormant, but frequently becomes reactivated in later adulthood. They theorized that there are three conditions which contribute to the development of strong sibling bonds: (1) high access, i.e, frequent contact

between the siblings, (2) the need for meaningful personal identity, and (3) insufficient parental influence.

The authors went on to explore the development of sibling bonds in childhood. Drawing upon the attachment theory of Bowlby (1969), discussed above, they suggested that siblings can become objects of attachment to a child. This may happen especially in families where the parents are unable to provide sufficient nurturance. They described the manner in which a sibling can be "a constant object to which an infant can turn for reassurance, security, and a warm embrace" (p. 29). This development can create problems in the relationship between siblings, however, as a child rarely has the maturity and competence to provide adequate care. Siblings may also become "transitional objects" (Winnicott, 1951/1958), according to Bank and Kahn. They can assist in the transition from infantile fusion with the mother to an individuated self separate from the mother. This type of bond has its satisfactions and frustrations. The authors suggested some of the ambivalence in sibling relationships has its roots in this early attachment between siblings. Other implications may arise from this attachment. The siblings may remain fused and fail to differentiate from each other, as in the twinning reaction discussed above. On the other hand, in an effort to individuate, and avoid fusion, they

may precipitously reject each other or try to become opposites.

As children become older, Bank and Kahn theorized, siblings are important to the child's developing identity. Siblings often organize themselves into twosomes. They compare themselves to each other, and try out different types of interactions with each other in their attempts to establish a coherent identity. They may develop in complement to each other or may conflict with each other. The pattern of identification may be static and unchanging, becoming "frozen misunderstandings", or may be constantly changing and reevaluated.

Bank and Kahn (1982) described eight major identification processes in sibling relationships, which may be transitory or stable. The eight processes can be further categorized into three major groups, as follows: (1) Close Identification: Twinning, Merging, Idealing, (2) Partial Identification: Loyal acceptance, Constructive dialectic, Destructive dialectic, and (3) Distant Identification: Polarized rejection, De-identifying. As can be seen, these processes are on a continuum from extreme sameness to extreme difference. The patterns which are extremely close may be unhealthy because there is a lack of differentiated self. Those in the middle tend to be the healthiest, allowing for change and flexibility,

a sense of differentness along with appreciation of the other. At the other extreme, where siblings see themselves as opposites, the relationship may suffer from estrangement and disociation.

The authors examined the phenomenon of intense sibling loyalty. Frequently, though by no means always, the loyal siblings are the oldest, often oldest females. The loyal sibling may devote him- or herself to caring for the other sibling(s), and may be a parental child, who acts and feels like a parent. Loyalty can be reciprocal, where the siblings care for each other. The authors suggested that the development of this deep sibling loyalty requires a weakness or failure on the part of parents. However, without some basic provision of nurturance early in life, this loyalty will not develop. The authors noted that being of the same sex may also promote loyalty. Loyalty may also be one-way, where one sibling is the caretaker who gives without getting. This is seen by Bank and Kahn as detrimental. The roles in such a relationship may be rigid. Siblings may assume this role for many reasons: to protect the parents, to retain the image of an idealized parent by becoming like the parent, or to seize the parent's power. Bank and Kahn felt that this one-way loyalty is unhealthy as a sibling cannot replace an adequate parent. The caretaking sibling

is forced to grow up prematurely, and the cared-for child will receive inadequate parenting. Thus, reciprocal loyalty may be a beneficial experience in the absence of parental care, but one-way loyalties are frequently damaging to both siblings. A further area of sibling relationships covered by Bank and Kahn (1982) is that of the sexual influence of siblings. The development of sexuality and sexual identification can be affected by the sibling bond. From childhood through adulthood, people compare themselves physically to their siblings. An individual who feels rivalrous towards a sibling and believes him- or herself to be less sexually attractive may shun sexual relationships to avoid feelings of failure. At the same time, overly close identification and avoidance of rivalry may also retard sexual development. On the positive side, Bank and Kahn discussed the benefits that children can obtain from sibling role models who have a gradual, appropriate sexual "unfolding." They also described the issue of sexual relationships between siblings, which can range from playful curiosity to sibling incest. They suggested two different kinds of incest. Power-oriented incest is exploitive and coercive. Nurturance-oriented incest is often mutual and has elements of pleasure, loyalty, and compassion. Incest was always found to be harmful, especially to females. It is more

likely to occur if there is parental neglect or absence, so that siblings turn to each other for nurturance, or to direct their rage at the parents upon each other in power-oriented incest.

Bank and Kahn (1982) also discussed the area of sibling aggression and rivalry. They noted that aggression can have positive aspects. It provides physical contact which even though painful, represents human contact. Especially in families where parents are emotionally unavailable, fighting between siblings can provide needed attention and stimulation. Aggression between siblings also can help the child to learn conflict resolution. Furthermore, it may serve as displacement for aggression felt toward others who are feared. Thus, aggression between siblings may serve many needs. However, sibling aggression can become highly destructive, creating intense feelings of anger, hatred, and rivalry. Parent-child interactions can affect the intensity and nature of sibling aggression, by providing "effective refereeing," attempting to avoid the conflicts, or by amplifying the conflicts. These latter two patterns are more likely to lead to problems in sibling aggression. Bank and Kahn suggested that sibling rivalry and aggression have long-term consequences on personality. Healthy aggression and rivalry can leave the individual with a sense of

confidence, knowledge of personal strengths and weaknesses, and skills in managing conflicts with others. Intense hostility and rivalry, however, can lead to chronic feelings of envy and inferiority.

Bank and Kahn's work and that of the other family system theorists reviewed here make it clear that sibling relationships are complex, involving issues of attachment, dependency, loyalty, identification, sexuality, competition, and aggression. These theorists clarified the autonomy of the sibling subsystem. Siblings can have impact upon each other relatively independent of parental impact. The importance of the sibling subsystem is intensified when the parents are in some way inadequate or unavailable. Siblings then provide important parental functions for each other. However, this process may have pathological consequences for the siblings. In a family where there is adequate parenting, sibling bonds are also important and contain many dimensions. Bank and Kahn (1982) concluded:

> ... as long as one has a brother or a sister alive there is always another human being who has known one as a child, who has experienced one in a unique and intimate way over which one has had little control, who has been a mirror, however distorted, of one's childhood and youth

- someone, in short, who has been a child of, and has shared, the same parents (Bank & Kahn, 1982, p. 336).

Thus, the sibling relationship provides a sense of continuity and reflection of the individual in all his or her complexity.

## Observational Developmental Research

Since the 1970's, research on siblings has shifted in focus from studies on birth order and sibling status, to more direct examination of sibling relationships. Lamb (1982) stated that:

> the new generation of research on sibling relationships is descriptive and process oriented... researchers and theorists can now refer to a rapidly growing body of research focused on the elucidation of processes, and there is a general awareness that sibling status comparison studies can never in themselves demonstrate formative processes (Lamb, 1982, p. 12).

In fact, this body of research is not entirely new. One of the first observational studies of siblings was carried out by Buhler (1937). Specially trained child psychologists observed seventeen Austrian families twice a week over periods of up to almost two years. The families were of the upper middle class, with from one to three children each. The observers in a sense became a part of

the families, joining them in all their activities. The family interactions were recorded and analyzed in terms of parent-child and sibling relationships.

In looking at the sibling relationships, Bühler focused upon six sibling pairs. She found that they differed in a number of dimensions. "Affective structure" differed, some being positive and happy, others being negative, and still others neutral. "Objective content" was another dimension, defined as the "actual activities and interests of the children as expressed in their social relations with each other" (p. 171). The children's shared activities could be quite rich and stimulating or more limited. Another dimension was "formal structure", which referred to the patterns of dominance and submission between the siblings. The last dimension was "relations to the outside world". The siblings differed in whether they were unified or easily split in relation to others. Buhler concluded that sibling relations are quite complex and multi-faceted at a time when these relationships were generally considered relatively unimportant.

A number of more recent observational studies of sibling interaction, in both laboratory and naturalistic settings have been conducted and will be reviewed in this section.

Lamb (1978b) conducted an observational study of eighteen-month old infants and their preschool-aged siblings. The children were observed interacting in a laboratory playroom for 24 minutes. For one eight minute period, the mother was present, for another, the father was present, and for a third both parents were present. He found that there was little direct interaction between the sibling pairs. Both the younger and older siblings preferred interactions with the parents. There was more parent-child and sibling-sibling interaction when one parent was in the room, than when both were present. Lamb also found differences in the behaviors that the older and younger siblings directed towards each other. The older children were more likely to direct "affiliative" behaviors to their siblings (e.g., vocalizing, offering toys), than vice versa. The infants spent more time monitoring the location and activities of their older siblings and maintaining proximity between them. These younger siblings were more likely to imitate the older siblings and take over their toys than the reverse. There were few sequences of interactive play. Another finding was that there were few sex differences in these patterns. Lamb made a number of generalizations based on this data. He concluded that absolute levels of sibling interaction were low, and that infants prefer to interact with parents rather than

siblings if given the choice. He also concluded that children have very different types of interactions with parents than with siblings. He asserted, "it may be incorrect to assume because there is little direct interaction between infants and siblings that siblings play an insignificant role in the infants' development" (p. 57). He felt that siblings provided a type of play experience that would facilitate mastery of the object environment.

Lamb (1978a) also conducted a short-term longitudinal study of another group of infants and their preschool-aged siblings. Twenty-four sibling pairs were observed on two occasions in a laboratory playroom in the presence of their parents. The first observation took place when the infants were twelve months old, and the second when they were eighteen months old. As in his previous study, Lamb found that the siblings assumed different roles toward each other. The younger siblings observed and imitated. The older siblings "led" the younger ones by drawing their attention, offering toys, and dominating them (e.g., taking toys, hitting). Over time there was great stability in the infants' behavior, along with some tendency to increase social behaviors directed at the older siblings. The older siblings' behaviors were also highly correlated over time, but not as highly as that of the infants. Interestingly, Lamb found that the older siblings' behavior

at the second observation was better predicted by the infants' behavior at the first session than by their own behavior at the first session. He suggested that the infants' were affecting the older siblings' behavior, in that the more sociable the infants when first observed, the more sociable behavior they later elicted from their preschool-aged siblings. In this study, some sex differences were found among the older siblings in that older girls tended to interact more with their younger siblings than did older boys. Again, both children preferred interaction with the parents over the sibling.

From this data, Lamb (1978a) concluded that both children had an influence over one another's development. The older child tended to facilitate the younger's mastery of the object world. The younger child influenced the social behavior of the older. He suggested that studies conducted in the home are need for further understanding of the interactions between siblings.

In another laboratory study, Samuels (1980) studied fourteen 23-month old infants with their older siblings to determine the effect of the older sibling's presence on infant locomotor exploration. She found that sibling presence increased locomotor exploration. This finding is supportive of Lamb's thesis that older siblings influence mastery of the object world.

In an effort to provide information on sibling interaction in a natural environment, Abramovitch and her colleagues have conducted a series of observational studies in the home. Abramovitch, Corter, and Lando (1979) observed 34 pairs of preschool-aged siblings for two one-hour periods ir their homes. The pairs were either both male or both female, and differed in age by either a small interval (one to two years), or a large interval (two and one-half to four years). The researchers classified behaviors into three general categories. "Agonistic" behaviors included physical aggression, object struggles, and verbal aggression. "Prosocial" behaviors included sharing objects, helping, giving praise, comforting, and physical affection. Imitation involved following the sibling and performing the same novel behavior as the sibling within 10 seconds. Responses to initiated behaviors were also recorded.

Contrary to the findings of Lamb (1978a, 1978b), these authors found a high level of interaction between the siblings in the home. They stayed together for 90% of the time, and the mean number of separate acts initiated by each pair was approximately 40 per hour. This high level of interaction was the same for both male an female pairs, and both large and small age intervals. The authors also found that the older child in each pair

tended to initiate most of the agonistic behavior. There were no effects of sex or age interval on total agonism. However, boys did engage in significantly more physical aggression than girls. In looking at the prosocial behaviors, it was found that older girls were more likely to engage in positive, nurturant behavior. In addition, females responded more positively to prosocial behavior. The younger siblings initiated a much greater percentage of the prosocial acts than of the agonistic acts, without significant effects of age or sex. There was no correlation between agonistic and prosocial behavior. Both occurred in high frequency.

Among imitative behaviors, the younger siblings imitated much more than the older ones. This finding was consistent with Lamb (1978a, 1978b). However, there was also some imitation on the part of the older siblings, approximately 20%. Again there were no effects of sex or age interval.

The authors concluded that there is a high level of interaction between siblings in the home. They noted that their visits were arranged at a time when the children were likely to be together; thus this high level of interaction may not be typical. However, they concluded that "the present results indicate that, at least in the middle class families studied here, siblings play an

important role in one another's social lives..." (p. 1001). In addition, they found the quality of the interaction to be quite varied and concluded that rivalry was not the predominant basis of sibling interaction.

These authors continued their research in a study of mixed-sex sibling dyads (Abramovitch, Corter, & Pepler, 1980). Thirty-six pairs of mixed-sex siblings were observed, following the same format as before. Results of this study were highly similar to results of the study on same-sex dyads, and lent support to the findings.

In a longitudinal followup to these studies, Pepler, Abramovitch, and Corter (1981) observed 28 of the same-sex sibling dyads and 28 of the pairs of mixed-sex sibling dyads who had been previously observed. The same design was followed in this study which took place eighteen months after the initial observations. They found that the patterns of interactions remained stable over this time period. There was a great amount of interaction between the siblings. Older children engaged in more prosocial and agonistic behaviors. There were no effects of sex, sex composition, or age interval upon prosocial or agonistic behaviors. Girls were no longer more prosocial than boys. Younger siblings imitated more than older siblings, with no age interval or sex effects. The authors assessed changes over time and found a marked increase in prosocial

behaviors in both siblings in same-sex as well as mixed-sex dyads. There was a significant increase in agonistic behavior among mixed-sex pairs. Among same-sex pairs, younger siblings showed an increase and older siblings a decrease in agonism. In looking at changes in imitation, it was found that frequency of imitation decreased markedly in mixed-sex pairs, but showed no change for same-sex dyads.

Abramovitch, Pepler, and Corter (1982) reviewed and summarized the findings of this series of studies. Among the most important findings were the high amount of interaction that took place, and the variety in the types of interactions. These findings are at odds with those of Lamb (1978a, 1978b). The authors suggested that the laboratory setting, with its unfamiliarity, brief sessions, novel toys, and the comings and goings of the parents, may have distracted the siblings from each other. They concluded that siblings do play an important role in the child's social life, and that "the relationship seems to be a full one" (p. 83).

Another important finding was that age interval had no significant effect upon sibling interaction. In light of all the advice given to parents regarding age interval, it is interesting that in these studies, age interval was not an important variable. It was found that the older

siblings were more dominant, both in positive and negative interactions, while younger siblings were more imitative. Over time, the younger siblings became increasingly initiative of prosocial and agonistic behaviors. The finding regarding sex differences were also important. Generally the effects of sex were not highly significant or consistent. Sex differences observed in the first observation did not show up at the second observation. The final significant finding was the change over time in same-sex versus mixed-sex dyads, wherein the latters' interactions increased in agonism and decreased in imitation at the later observation. The authors suggested that this change may herald the beginning of an increase in sex-typing. They concluded that "...it seems likely that the nature of early sibling interactions in a particular family may be related to how the children interact with other people outside the home" (p. 83). Thus, sibling relationships may have an impact upon the child's development and socialization.

Perhaps the most extensive observational research that has been performed is the work of Dunn and Kendrick (Dunn & Kendrick, 1979; Dunn, Kendrick, & McNamee, 1981; Dunn & Kendrick, 1981a, 1981b, 1982a, 1982b). These authors studied 40 families of lower middle class and working class in Cambridge, England. The families were

visited in their homes at four stages: (1) during the last month of the mother's pregnancy with the second child, (2) during the first month after the birth of the second child, (3) when the second child was eight months old, and (4) when the second child was fourteen months old. During each stage, at least two, often three hour-long visits were made. The children and their mothers were observed, and the mothers were interviewed about their first child's behaviors, reactions, and attitudes. In addition, the temperamental characteristics of the first-born child were assessed at the pregnancy interview, and when the baby was eight months old. The first-born children consisted of 21 boys and nineteen girls, ranging in age from 18 months to 43 months at the birth of the second child.

Dunn and Kendrick (1982b) found that following the birth of the sibling, the majority of first-born children in the sample showed signs of disturbance or negative behavior, according to the data derived from interviews with mothers. There was no single index of disturbance. Different children manifested this disturbance in differing ways, e.g., withdrawal, increased crying and clinging, whining, regression, demandingness, sleeping problems. There were also some positive changes in over half of the children, mostly taking the form of increased independence.

While the children's aggression and negative behavior was directed at their mothers, most of the children were interested in and affectionate with the baby. Many showed concern when the baby cried. Direct physical aggression was uncommon. However, over half of the children were reported by their parents as deliberately annoying the baby, e.g., taking things from the baby, shaking the crib. Most of the first-borns were eager to help in caring for the baby. Many of the first-borns imitated the baby occasionally.

Dunn and Kendrick (1982b) found few patterns in the negative reactions. There were some association between positive behaviors toward the baby in that children who talked frequently about the baby also tended to want to help with caring and tried to entertain the baby. There were no simple patterns between signs of disturbance and friendliness to the baby. Some of the children who were most interested in and friendly towards the baby were also showing many signs of disturbance. However, it was found that children who showed no interest in the baby were likely to show increased withdrawal and clinging. Many children showed both signs of regression and progression.

The observational data were supportive of the mothers' reports of their children's behavior. The children did become more difficult after the birth of the baby, and

were especially provocative while the mother was involved with the baby.

Dunn and Kendrick (1982b) examined a variety of variables for their effects upon the child's reaction to the birth of the sibling: temperament, sex, mother's state, previous relation with mother and father, preparation of the child for the arrival, breast- versus bottle-feeding the baby, and home versus hospital delivery of the baby. Many of these variables seemed to affect the child's reaction. Children who were rated extremely "negative in mood" before the birth of the sibling were more likely to increase in withdrawal and sleeping problems. Children who were "negative in mood" and extreme in "emotional intensity" were likely to show increased clinging. In regard to sex differences, boys were more likely than girls to withdraw. The mother's state affected the results in that where the mother was extremely tired and/or depressed following birth, the first-borns were more likely to increase in withdrawal. The previous child-parent relationship also had an influence upon initial reaction to the arrival of the sibling. Where there was a previously high level of confrontation between mother and child, the child was more frequently irritating or interfering with the baby. There was increased mother-child conflict after the birth in these families.

In families where the child was close to the father, there was less escalation of mother-child conflict, and less decrease in joint attention between mother and child. Age difference had little effect, although younger first-borns became more clinging.

As described above, these families were studied again when the babies were eight months and fourteen months old (Dunn & Kendrick, 1982b). The developing relationships between the siblings were examined through interviews with the mothers and observations of the children. The authors attempted to describe the siblings' interactions and relationships. They explored the relations of numerous variables upon the children's behaviors toward each other.

In describing the nature of the children's relationships, one important feature was the "salience" of each child's behavior for the other. The children interacted frequently. They each took notice of the other's actions. Older children usually noticed and reacted when the baby was doing something "naughty", potentially dangerous, or when the baby was upset. The ways in which they responded varied, from protecting and comforting the baby, to increasing the baby's distress. They were highly aware of the baby's actions. The babies, for their part, were frequently reported by mothers to miss the older child when he or she was absent, to go to

the older sibling for comfort, and to attempt to comfort the older sibling.

There was much individual variation in the quality of the siblings' interactions. Some were predominantly friendly, others almost exclusively hostile. The younger sibling was more likely to approach the older in a friendly rather than a hostile manner. The babies were less frequently hostile to the older sibling than vice versa, although there was no significant difference in the frequency of friendly approaches between first-borns and second-borns.

The authors found much ambivalence in the behaviors of the siblings. There were some first-borns who were frequently warm and friendly toward the sibling and rarely aggressive, while others showed frequent aggression and little affection. However, many children showed both affection and aggression. The authors suggested:

> It would be misleading to consider the relationship between the siblings in terms of a single dimension of warmth/hostility; that while there is indeed a dramatically wide range of individual differences in the emotional coloring of the relationship, there are different aspects of both positive and negative social behavior that do not form a simple pattern..." (Dunn & Kendrick, 1982b, p. 96).

The quality of sibling interaction bore interesting relationships to the pattern of communication between the children. The researchers found that first-borns tended to tailor their speech to second-borns in ways which to an extent resembled mothers' talk to infants. The more closely a child's speech to the baby resembled mothers' speech (including questions, diminutives, verbal play) the more likely was the child to show affection towards the baby in nonverbal ways. Nonverbal communication between siblings was a frequent occurrence. Joint play was usually accompanied by positive affect and much excitement. Dunn and Kendrick (1982b) speculated that this play may provide important experiences to the baby in terms of learning about the sibling, role-taking, and role reversal. Siblings often enjoyed bouts of joint activity, or "coacting"; where the children engaged together in some motor act or vocalization. These imitative sequences were intensely pleasurable to both children. As the baby grew older, his or her sensitivity to communicative signals from the sibling seemed to grow. Thus, it may be that the sibling relationship contributes in important ways to the child's ability to understand and communicate with others, especially in non-verbal communication.

Dunn and Kendrick (1982b) also studied the pattern of individual differences in sibling relationships over time.

They found that children who were described as withdrawn and worrying before the sibling's birth were less friendly with their siblings at fourteen months than were non-worrying children. Children who showed interest and affection to the baby shortly after the baby's birth were more friendly fourteen months later, and the second-borns were more friendly to them than were other second-borns. The effect was stronger for first-born boys than for first-born girls. Children who were withdrawn following the sibling's arrival had more unfriendly relations with the sibling at fourteen months than children who had not withdrawn. It was also found that in families where the mother was very tired and/or depressed following birth, the children had a friendlier relationship. Age gap did not affect any measures of sibling interaction. There were significant differences between same-sex and mixed-sex pairs in their interaction. Same-sex siblings showed a great deal more friendly behavior to each other, and this was especially true for boys. In mixed-sex pairs, the older child became more frequently aggressive to the baby between the eight month and the fourteen month visits. Finally, it was found that mother's attitudes were related to the sibling relationship. In families where mothers discussed the baby as a person and talked about the baby's

care with the first-born, there was more friendly interaction between the siblings.

Dunn and Kendrick (1982a) made a number of crucial points in summarizing their findings. First, they concluded that the siblings were highly important to each other, as shown by the frequency of interactions, and the attention they paid to each other. A second important point involved the ambivalence and range of feelings for each other expressed by the children. Other important features were the range in individual differences in sibling relationships, and the differences between siblings in a given family in the ways they behaved toward each other. Dunn and Kendrick (1982a) also emphasized the importance of the communication between the siblings and the evidence of the children's "social understanding" of each other. They suggested that these young children may be more capable of "empathy" than has previously been thought. They also point out the importance of the interrelationship of the parent-child and child-child relationships. A final significant conclusion concerns the persistence of patterns of sibling relationships over time. They related further follow-up data on some of the families studied. These data indicated further continuity of the sibling relationship patterns in evidence at fourteen months.

Another observational study of siblings was carried out by Baskett and Johnson (1982). This study involved somewhat older children, between the ages of 4 and 8 years. Forty-seven families were observed interacting at home. These researchers found that a greater number and variety of child behaviors took place in parent-child interactions than in child-child interactions. A greater proportion of behaviors with parents were positive, and a greater proportion of those towards siblings were negative. There were few effects of sex and age. Baskett and Johnson (1982) suggested that the children were engaged in two different interactions systems with parents and with siblings. They concluded that the parent-child relationships were characterized by "positive reciprocity" while the sibling relationships were "coercive". They hypothesized that with siblings, children were learning how, when, and with whom to use aversive techniques and how to respond to coercion from others. Sibling interaction, while less frequent and less positive than parent-child interaction, was seen as an important learning experience to the child.

In looking at this observational research, it is possible to make some statements about the nature of sibling relationships. These studies all suggest that sibling relationships are highly important. While Lamb

(1978a, 1978b) and Baskett and Johnson (1982) found that children interact more with parents than with siblings when both are present, they also concluded that sibling interactions were important. The others studies reviewed have suggested that siblings interact frequently with each other. They pay attention to each other's actions, and show many signs of interest in each other.

Baskett and Johnson (1982) found that negative interactions among siblings far outweighed positive ones. On the other hand, the work of Bühler (1937), Lamb (1978a, 1978b), Abramovitch and her colleagues (1979, 1980, 1981, 1982), and Dunn and Kendrick (1982a, 1982b) found that behaviors in sibling interaction range from physical aggression, to imitation, to playing together, to comforting each other. Baskett and Johnson (1982) studied somewhat older children than did these other researchers, with the exception of Bühler (1937). This may play a role in their findings that aggression is predominant. At this point, however, the weight of the evidence suggests that sibling relationships are not necessarily predominantly negative. Aggression may dominate, but relationships are more likely to be ambivalent, with both friendly and aggressive elements. Some sibling relationships may be highly positive, with little hostile interaction. These

studies suggest that this is most likely to occur in same-sex sibling pairs.

A further finding which emerges from these studies is that, at least at young ages, the factor of gender makes little impact upon sibling relationships. Neither boys nor girls are more likely to be more consistently friendly or hostile to their siblings. The only exception to this is that, as noted above, same-sex sibling dyads, either male or female, tended to be more friendly than were mixed-sex dyads. Also interesting was the fact that age interval had little effect upon the relationship. These findings are at odds with much of the birth order research discussed earlier.

Finally, these studies suggest some of the ways in which sibling relationships may affect a child's social development. In addition to being a source of stimulation, they may provide the child with experiences he or she may be less likely to know in relation to parents: direct expression of aggression, empathy with a peer, dominance over others, and nurturance towards others.

**Model of Basic Components in Sibling Relationships**

Birth order research has directed social scientists into the area of sibling relationships. Study of these relationships has progressed from a parent-centered view

wherein sibling interactions were seen as primarily rivalrous, to a more flexible, expansive consideration where the complexities and ambivalence in sibling relationships can be appreciated and studied. Six major components organizing sibling relationships can be identified from the literature reviewed above: rivalry, hostility, companionship, caretaking, dependency, and identification. These components and their possible interactions will be described below.

There can be no denial that rivalry is a part of sibling relationships. Siblings vie for attention, love, approval, and material supplies, at first from parents and, as they mature, from other people as well. The rivalry can be bitter and intense, dominating the relationship. It can also be stimulating and challenging. It can be repressed and denied, or expressed in either a moderated or a destructive manner.

Hostility can exist in the sibling relationship separate from rivalry, although the two affects are likely strongly related. Hostility involves angry exchanges, fights, both verbal and physical, feelings of dislike for the sibling. Anger between siblings can have many sources, including, in addition to rivalry, feelings of rejection and disappointment.

Companionship refers to the friendly, playful component to sibling relationships. Playing games together, physical or imaginative, sharing interests and activities, confiding, sharing possessions are all interactions included in the concept of companionship.

Caretaking involves such feelings as sympathy, protectiveness, and nurturance towards the sibling. Caretaking activities include comforting, giving physical and emotional aid, and protecting the sibling from harm.

Dependency involves the receiving and the wish to receive support and nurturance from the sibling. Help-seeking behavior, asking for advice and support characterize this aspect of the sibling relationship.

Identification refers to the extent one feels the same or as different from the sibling. A child may feel fused with the sibling and attempt to be exactly like him or her. An individual may, on the other hand, strive to be totally different. A more balanced alternative would involve the recognition of areas of similarity and acceptance of differences.

It is hypothesized that these components are a part, either overt or covert, of all sibling relationships. In the healthy relationship all of these aspects can be allowed expression and can balance each other. In less healthy relationships, one or two components may

predominate and the other components will be repressed or undeveloped. The components may interact with each other and cluster together in certain types of sibling relationships. In an angry, distant relationship the components of rivalry and hostility would be high, while identification, dependence, caretaking and companionship would be undeveloped. On the other hand, rivalry and hostility may be denied, resulting in a relationship that may be overly close and dependent. A further hypothesis of this model is that the nature of the sibling relationship, and the extent to which the child learns to experience these different components in relation to the sibling, have an impact upon the personality of the child. The ways in which the individual relates to his or her siblings may be repeated in new relationships with people outside the immediate family.

## The Present Investigation

Birth order research has provided interesting but disappointingly inconsistent findings regarding the prediction of many personality characteristics. Most birth order research has examined the structure of sibling relationships (ordinal position, sex of subject, sex of sibling, age spacing, family size). It is possible that the reason for the inconsistent results in this field lies

in the failure of researchers to examine the nature and quality of sibling relationships.

In the present investigation, a questionnaire was designed to measure the basic components of sibling relationships in a college student population. This questionnaire was administered to a sample of college students, analyzed, and revised. The questionnaire then was used to predict personality characteristics in an independent sample of college students. It was hypothesized that the sibling relationship factors would predict personality traits in specific ways:

(1) The degree of rivalry will predict achievement orientation.

(2) The degree of hostility will predict need for affiliation and sociability.

(3) The degree of companionship will predict need for affiliation and sociability.

(4) The degree of dependency will predict need for affiliation, conformity, and sociability.

(5) The degree of caretaking will predict need for achievement and need for affiliation.

(6) The degree of identification will predict need for affiliation, conformity, and sociability.

(7) The sibling relationship factors will interact with sibling structure factors in predicting sex-role identification.

It was predicted that the components of sibling relationships described above would better predict personality characteristics than would sibling structure variables alone.

# CHAPTER II

# STUDY 1: SCALE CONSTRUCTION

This research project consisted of two separate studies, the first of which will be discussed in this chapter. Study 1 involved the construction of a scale designed to measure the emotional components of sibling relationships in college students. A pool of items was administered to a large sample of college students and then subjected to statistical analysis, leading to the construction of scales. The development of the questionnaire and the results of the statistical analysis will be described below.

## Method

### Development of Questionnaire

#### Subjects

The subjects for Study 1 were undergraduate students enrolled in psychology classes at the University of North Dakota. A total of 259 subjects participated. There were 180 female subjects (69.50%) and 79 male subjects (30.50%). Subject restrictions required that subjects participating in the study have at least one sibling and not be a member of a twin pair or other multiple birth. Subjects received

class credit for their participation in accordance with the amount of time spent in the study.

Subjects were recruited for the study by placing a sign-up folder in the Psychology Department of the University. In addition, the researcher attended some of the lecture and recitation classes of introductory Psychology to explain the study and invite students to participate.

## Scale Construction

It was hypothesized in Chapter I that sibling relationships can be described in terms of six separate dimensions: Hostility, Rivalry, Companionship, Caretaking, Dependency, and Identification. To this author's knowledge, there is no instrument available for assessing these sibling relationship variables. Therefore, a questionnaire was constructed. The purpose of the questionnaire was to assess retrospectively the feelings and attitudes that an individual held towards his or her sibling during childhood. The items on the questionnaire were rationally generated and were designed to fall into one of the above six dimensions. Items on the hypothesized Hostility scale described angry feelings, conflict, and aggression towards the sibling, e.g., "My brother/sister and I used to hit each other frequently." The hypothesized

Rivalry scale items described feelings of competition with the sibling, for achievement, attention, and recognition. Items on the hypothesized Companionship scale reflected feelings about the sibling as a playmate, confidante, and peer, for example, "One of the best things I remember about childhood was playing with my sister/brother." The hypothesized Caretaking items dealt with nurturant feelings towards the sibling, as well as actual caretaking behaviors such as babysitting, teaching, and providing comfort. Items on the hypothesized Dependency scale described perceptions of the sibling as a source of nurturance and need-fulfillment. Items on the hypothesized Identification scale reflected the degree to which the subject strove to be similar to or different from his or her sibling. In order to avoid creating a response set, the items on each scale were written so that some reflected the presence of a given feeling or attitude and others reflected its absence or opposite. Appendix A shows the breakdown of items into the hypothesized scales. The questionnaire was titled the Sibling Relationship Questionnaire (hereafter SRQ). Items from the six hypothesized scales were arranged in random order on the questionnaire.

The items of the initial version of the SRQ consisted of statements describing feelings, attitudes, or events that individuals may have experienced in relation to their

siblings as children. Most of these statements referred to conscious feelings and perceptions. Thus, the face validity of most items was felt to be quite high. There were a few exceptions to this; e.g., "I used to have dreams about bad things happening to my sister/brother" was designed to reflect feelings of unconscious hostility. The instructions to the SRQ asked the test-taker to respond to each statement by indicating the extent of his or her agreement on a 7-point, Likert-type scale. The possible responses included Agree Strongly, Agree, Agree Slightly, Undecided, Disagree Slightly, Disagree, and Disagree Strongly. The respondent was also asked to answer the questionnaire keeping in mind his or her feeling towards the sibling when they were children. Bank and Kahn (1982) found that sibling relationships characterized by high access, i.e., closeness in age and abundance of shared experiences, were likely to be most intense. Thus, in the event that a subject had more than one sibling, the sibling closest in age was to be considered in answering the questionnaire. A complete copy of the original SRQ, including instructions, can be found in Appendix B.

**Procedure**

The questionnaires were administered to subjects in a group setting. The groups ranged in size from 3 to 32

subjects. After the questionnaires and consent forms were distributed, the experimenter read the consent form aloud and asked subjects to sign the form if they wished to participate. The experimenter then read the questionnaire instructions aloud to the subjects. Subjects were also asked to give some family information, including their sex, age, the sex of their closest-in-age sibling, the age of this sibling, their own ordinal position, and the total number of children in their families. The experimenter was present throughout the testing session to answer any questions that arose. The SRQ took most subjects from 15 to 30 minutes to complete.

## Results

### Description of Sample

A total of 259 subjects completed the questionnaire. Four male subjects were deleted from the data analysis for various reasons. One was deleted because he was a twin, a restriction set up at the outset. In addition, it was decided that subjects who were 12 years or more older or younger than their closest-in-age sibling should be deleted from the sample. This decision was based on a number of considerations. It was felt that as adolescent development generally begins at around the age of 12, subjects 12 years or more older or younger than their closest sibling could

not truly be said to be recalling their feelings when they and their siblings were "children", as was specified in the questionnaire instructions. In addition, it was felt that subjects with such a large age difference between themselves and their siblings represented extreme cases who might well differ significantly from subjects with siblings closer in age. This decision resulted in the deletion of three more male subjects from the data analysis. Data analysis was thus performed on questionnaire data from a total of 255 subjects, 75 males (29.41%) and 180 females (70.59%).

The first step in data analysis involved an examination of the sample of subjects in relation to the family demographic information collected. Table 1 gives the means, standard deviations, and ranges for age, age difference, ordinal position, and family size for male and female subjects, and for the total sample. The significance of the differences between the means of male and female subjects on these variables was tested with t-tests. These tests yielded non-significant results ($t=1.25$, $p=.18$; $t=0.68$, $p=.50$; $t=1.00$, $p=.31$; $t=-1.27$, $p=.21$; for age, age difference, ordinal position, and family size, respectively). The average subject was 19.96 years of age (S.D. = 3.61), 1.05 years younger than the closest-in-age sibling (S.D. = 3.40).

**Table 1**

**Family Demographic Variables For Male and Female Subjects: Age, Sibling Age Difference, Ordinal Position and Family Size**

| Variable | Males | | | | Females | | | | Total | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | Range | N | Mean | SD | Range | N | Mean | SD | Range |
| Age | 75 | 20.40 | 3.14 | 18 - 34 | 180 | 19.77 | 3.79 | 17-39 | 255 | 19.96 | 3.61 | 17-39 |
| Sibling Age Difference | 75 | -0.83 | 3.37 | -11 - 7 | 179 | -1.15 | 3.41 | -10- 9 | 254 | -1.05 | 3.40 | -11- 9 |
| Ordinal Position | 75 | 2.69 | 1.74 | 1 - 10 | 180 | 2.96 | 2.01 | 1-11 | 255 | 2.88 | 1.93 | 1-11 |
| Family Size | 75 | 3.91 | 1.59 | 2 - 10 | 180 | 4.22 | 2.26 | 2-14 | 255 | 4.12 | 2.09 | 2-14 |

[a] One female subject failed to report sibling's age.

**Table 2**

**Distribution of Ordinal Positions Among Male and Female Subjects: Study 1**

| | Males | | Females | | Total | |
|---|---|---|---|---|---|---|
| Ordinal Position | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| First-born | 20 | 26.67 | 45 | 25.0 | 65 | 25.49 |
| Second-born | 20 | 26.67 | 44 | 24.44 | 64 | 25.10 |
| Third-born | 18 | 24.0 | 41 | 22.78 | 59 | 23.14 |
| Fourth-born | 8 | 10.67 | 19 | 10.56 | 27 | 10.59 |
| Fifth-born | 5 | 6.67 | 11 | 6.11 | 16 | 6.27 |
| Sixth-born | 2 | 2.67 | 11 | 6.11 | 13 | 5.10 |
| Seventh-born | 0 | 0 | 3 | 1.67 | 3 | 1.18 |
| Eighth-born | 0 | 0 | 1 | .56 | 1 | .39 |
| Ninth-born | 1 | 1.33 | 2 | 1.11 | 3 | 1.18 |
| Tenth-born | 1 | 1.33 | 0 | 0 | 1 | .39 |
| Eleventh-born | 0 | 0 | 3 | 1.67 | 3 | 1.18 |
| Total | 75 | 29.41 | 180 | 70.59 | 255 | 100.00 |

The average ordinal position was 2.88 (S.D. = 1.93) in a family of 4.12 (S.D. = 2.09) children.

The distribution of ordinal positions among this sample was examined. The results are shown in Table 2. The distribution of first-, second-, and third-born subjects was approximately equal, among both male and female subjects. Lower birth orders were more sparsely represented, which may be due to the lower incidence of larger families in the general population. A Chi-square test performed on this data gave non-significant results (Chi-square = 6.79, $p$ = .74). This indicates that the distribution of ordinal position among subjects did not differ significantly among males and females.

Table 3 presents data concerning age differences between subjects and their closest-in-age siblings in relation to their siblings' relative birth order (sibling sex and birth order in relation to the subject, i.e., older or younger). Among males, the largest subgroup was subjects with older brothers. Among females, the largest subgroups were those with older brothers and older sisters. A Chi-square test determined that the distribution of older and younger brothers and sisters among male and female subjects was not significantly different (Chi-square = 4.23, $p$ = .24). In addition, t-tests were performed on the differences between mean age differences for males

Table 3

**Relative Birth Order of Siblings and Age Differences for Male and Female Subjects: Study 1**

| | Males | | | | Females | | | | t | p |
|---|---|---|---|---|---|---|---|---|---|---|
| Relative Birth Order of Sibling | N | Age Difference Mean | SD | Range | N | Age Difference Mean | SD | Range | | |
| Older Brother | 29 | -2.76 | 2.17 | -11 - -1 | 55[a] | -3.51 | 2.62 | -10 - -1 | 1.32 | n.s. |
| Younger Brother | 16 | 2.19 | 1.56 | 1 - 7 | 37 | 2.46 | 1.12 | 1 - 6 | -0.72 | n.s. |
| Older Sister | 15 | -3.67 | 2.23 | - 9 - -1 | 59 | -2.98 | 1.83 | -10 - -1 | -1.23 | n.s. |
| Younger Sister | 14 | 2.86 | 1.70 | 1 - 6 | 28 | 2.61 | 1.77 | 1 - 9 | 0.44 | n.s. |

[a]One female subject failed to report sibling's age.

and females for each of the relative birth order positions. These all showed non-significant results, as shown in Table 3. Overall, it appeared that male and female subjects did not differ significantly from each other in regard to these demographic variables.

## Factor Analysis

The SRQ had been constructed with six dimensions in mind: Companionship, Dependency, Hostility, Rivalry, Caretaking, and Identification. Principal axis factor analyses with Varimax (orthogonal) rotation were performed on the questionnaire data for 2 through 8 factor solutions. The factors emerged in an interesting way during these analyses. In the two-factor solution, items from the hypothesized Companionship, Dependency, Identification, and Caretaking scales clustered together to form one factor. Items from the hypothesized Hostility and Rivalry scales formed a second, somewhat weaker factor. This solution accounted for 28% of the test variance. In the three-factor solution, several items from the hypothesized Caretaking scale split off from the first factor to form a third factor. These items had high negative loadings. There were also items from the hypothesized Dependency and Identification scales on this factor. Overall, this factor seemed to reflect a perception of the sibling as a parental

figure who was responsible for taking care of the subject. The three factors together accounted for 33% of the test variance. When the four-factor solution was performed, items from the hypothesized Hostility and Rivalry scales separated into two distinct factors. Thus the first factor included primarily Companionship, Dependency, and Identification items, the second Rivalry items, the third Hostility items, and the fourth Caretaking items. This fourth factor included many items from the third factor of the 3-factor solution. However, now the factor loadings were reversed in direction, so that the factor described feelings of being a parental figure towards the sibling, and a rejection of identification with the sibling. Thirty-six percent of the variance was attributable to these four factors. In the five-factor solution, items from the Hostility and Rivalry scales recombined, and two new factors emerged, in addition to the Companionship and Caretaking factors. These new factors consisted of items drawn from the former first factor which, as noted above, had been composed of items reflecting Companionship, Dependency, and Identification. The first of these new factors consisted of items which reflected feelings of being very emotionally close and loyal to the sibling. It was most similar to the hypothesized Dependency scale, but also included items from Companionship and Identification.

Overall, the content of the items of this factor revolved around empathy and concern for the sibling and a feeling of mutual dependency between the subject and his or her sibling. The second new factor consisted of many items from the hypothesized Identification scale, a well as some Dependency and Companionship items. The Identification items tended to be the more extreme ones which reflected idealization of the sibling and wishes to be as much like the sibling as possible. The content of the items on this factor had almost a flavor of identity diffusion, e.g., "I sometimes felt that I was my sister's/brother's 'shadow'". The five factors accounted for 38% of the test variance.

In the six-factor solution, the items from the hypothesized Hostility and Rivalry scales again separated into two distinct factors. The first factor in this solution consisted mostly of those items from the Companionship scale which reflected seeing the sibling as a highly enjoyable playmate and confidante. The second factor was very similar to the second factor of the five-factor solution, describing feelings of being emotionally "tuned in" with and loyal to he sibling. There were also themes of mutual reliance and caring between the siblings. The third factor was mostly composed of hypothesized Hostility items, reflecting physical and verbal argument and hostile actions toward the sibling.

The fourth factor included many Identification items reflecting wishes to be like the sibling and wishes for an exclusive relationship with the sibling. It was highly similar to the Identification factor in the five-factor solution. The fifth factor revolved around feelings of responsibility for caring and discipline of the sibling, drawn mostly from the hypothesized Caretaking items. The sixth factor dealt with feelings of envy, jealousy, and competition with the sibling. The six-factor solution accounted for 41% of the test variance.

The seven-factor solution was quite similar to the six-factor solution, although the ordering of the factors changed. The strongest factor remained the Companionship factor, followed by the factor reflecting Identification. The third factor was similar to the factor in the six-factor solution which described empathy and emotional closeness to the sibling. The fourth, fifth, and sixth factors closely resembled the Hostility, Rivalry, and Caretaking factors, respectively, in the six-factor solution. The seventh factor was a very weak one, containing only 6 items with factor loadings of .30 or greater. Examination of the content of these items revealed that all but one were items where reference to parents were made, e.g., "I felt that my parents treated us as individuals", and "I identified more with my

sister/brother than with my parents." Thus, this factor seemed to reflect interaction between feelings about the parent and sibling relationships. This solution accounted for 43% of the test variance.

In the eight-factor solution, the first six factors were again very similar to the six-factor solution. The seventh and eighth factors were quite weak, containing only 7 and 5 items, respectively, with factor loadings of .30 or greater. Items in the seventh factor reflected primarily a denial of closeness to or concern for the sibling. Items in the eighth factor were quite heterogeneous in content; however, the three strongest items seemed to involve a denial of competition with the sibling. The eight-factor solution accounted for 44% of the test variance.

It was felt that the six-factor solution made the best theoretical fit of the different factor analyses, as well as providing the most balanced solution in regard to the number of items on each factor. Therefore, it was decided to look at this solution in more depth. An absolute cut-off of .30 was set for item factor loadings for each factor. However, if a factor had an adequate number of items with loadings of .40 or greater, then this figure was used as the lower limit for that factor. Table 4 shows the items in each factor which met these criteria, along with their loadings and content.

Table 4

SRQ Factor Scales and Item Loadings: Study 1.

| Item No. | Loading | Item |
|---|---|---|
| Factor 1 Companionship (25 items) | | |
| 83 | .74 | My sister/brother was not much fun to be around. (R) |
| 63 | .69 | One of the most enjoyable things I remember about childhood was playing with my sister/brother. |
| 49 | .69 | I do not remember playing very much with my sister/brother. (R) |
| 98 | .67 | From the start, my brother/sister and I just never got along. (R) |
| 103 | .63 | I never wanted to have much to do with my sister/brother, nor she/he with me. (R) |
| 61 | .61 | I could never rely on my sister/ brother for anything when we were children. (R) |
| 34 | .60 | My brother/sister and I played more with our friends than with each other. (R) |
| 43 | .60 | I could never understand my brother/sister very well. (R) |
| 14 | .59 | My sister/brother and I shared a lot of the same interests. |
| 28 | .56 | My sister/brother was about my best friend when we were children. |
| 79 | .56 | My sister/brother and I usually shared all or most of our toys. |
| 73 | .55 | I identified more with my sister/ brother than with my parents. |

Note: (R) indicates that scoring was reversed on these items.

**Table 4** continued

| | | |
|---|---|---|
| 23 | .55 | My brother/sister and I were complete opposites. (R) |
| 100 | .55 | I used to confide in my brother/sister about issues that I would not discuss with my parents. |
| 118 | .55 | I felt closer to my sister/brother than to anyone else in my family. |
| 11 | .53 | I used to feel that my friends were nicer than those of my brother/sister. (R) |
| 46 | .52 | My relationship with my brother/sister was as important to me as my relationship with my parents. |
| 24 | .51 | My sister/brother and I shared a lot of the same friends. |
| 2 | .49 | I preferred to confide in my parents about my worries, rather than in my sister/brother. (R) |
| 37 | .49 | I never wanted to discuss my problems with my brother/sister. (R) |
| 25 | .46 | After an argument, my brother/sister and I never stayed mad at each other for very long. |
| 38 | .45 | I never wanted to be anything like my sister/brother. (R) |
| 17 | .42 | My brother/sister and I had special jokes between us that others did not understand. |
| 7 | .41 | I was never bored if my brother/sister was around. |
| 51 | .40 | I did not like to let my sister/brother borrow my possessions. (R) |

Note: (R) indicates that scoring was reversed on these items.

**Table 4** continued

Factor 2 Loyalty (17 Items)

| | | |
|---|---|---|
| 48 | .64 | It upset me terribly when my brother/sister and I had a disagreement. |
| 92 | .59 | I felt very upset when my brother/sister showed anger or disapproval towards me. |
| 88 | .56 | My brother/sister used to try to comfort me when I was upset. |
| 78 | .54 | It worried me when my brother/sister was ill. |
| 6 | .54 | When my sister/brother was punished for something she/he did, I felt almost as bad as if I were being punished myself. |
| 122 | .53 | I felt much more secure when my sister/brother was with me. |
| 119 | .52 | I used to feel that brothers and sisters should watch out for one another. |
| 4 | .50 | When my sister/brother was scared or unhappy, I used to try to comfort and cheer her/him up. |
| 110 | .50 | If I heard a compliment about my brother/sister, I was eager to share it with him. |
| 13 | .48 | I hated to be separated from my brother/sister. |
| 15 | .48 | I tried to entertain my brother/sister when he/she was bored. |
| 97 | .47 | It disturbed me when it seemed like my sister/brother was growing apart from me. |
| 21 | .45 | It did not disturb me to see my brother/sister crying. (R) |

Note: (R) indicates that scoring was reversed on these items.

**Table 4** continued

| | | |
|---|---|---|
| 50 | .45 | I used to worry quite a bit about my brother/sister. |
| 82 | .44 | When my parents were angry at my brother/sister I often tried to defend him/her. |
| 19 | .43 | I felt proud of my brother's/sister's accomplishments. |
| 54 | .41 | I usually ignored any advice my brother/sister gave me. (R) |
| Factor 3 Hostility (17 items) | | |
| 68 | .72 | My brother/sister and I used to hit each other a lot. |
| 101 | .69 | My parents were always breaking up arguments between my sister/brother and me. |
| 33 | .61 | I liked to pinch and slap my brother/ sister. |
| 108 | .61 | There was never any physical violence between my brother/sister and me. (R) |
| 16 | .57 | I used to complain a lot about my sister/brother to the rest of my family. |
| 70 | .54 | My brother/sister was very annoying to me. |
| 111 | .53 | I have been so angry at my sister/brother that I wished to seriously harm her/him. |
| 64 | .53 | I liked to try to scare my brother/ sister. |
| 84 | .49 | I thought that my brother/sister was obnoxious. |
| 77 | .48 | I used to like to deceive my brother/sister. |

Note: (R) indicates that scoring was reversed on these items.

Table 4 continued

| | | |
|---|---|---|
| 55 | .46 | I liked to tease and make fun of my sister/brother. |
| 56 | .45 | I often tried to persuade my brother/sister to do my household chores for me. |
| 32 | .45 | My sister/brother and I rarely argued over doing household chores. (R) |
| 91 | .44 | I can remember stealing my sister's/ brother's possessions on at least one occasion. |
| 90 | .41 | I tried hard to avoid arguments with my brother/sister. (R) |
| 22 | .41 | I felt pleased when my parents were mad at my sister/brother. |
| 66 | .41 | I had little reason to be angry with my brother/sister. (R) |
| Factor 4 Identification (16 items) | | |
| 109 | .62 | I sometimes felt that I was my sister's/brother's "shadow." |
| 10 | .62 | I liked to get clothes that matched my sister's/brother's clothes. |
| 12 | .61 | I used to try to dress like my sister/brother dressed. |
| 96 | .58 | It upset me if my brother/sister walked home from school with friends rather than with me. |
| 95 | .54 | I used to think of my sister/brother as being close to perfect, and I tried to be like her/him. |
| 58 | .50 | I used to feel hurt when my brother/ sister seemed to prefer playing with someone other than me. |

Note: (R) indicates that scoring was reversed on these items.

**Table 4** continued

| | | |
|---|---|---|
| 72 | .50 | If my brother/sister got interested in something, I usually got interested in it, too. |
| 85 | .46 | If I got scared at night, I would call for my sister/brother. |
| 107 | .45 | My parents thought it was cute when my sister/brother and I dressed alike. |
| 75 | .45 | When we were little, I liked to sleep in the same bed with my sister/brother. |
| 80 | .44 | My brother/sister and I could practically read each other's minds. |
| 57 | .43 | I used to think that it would be fun if my sister/brother and I were twins. |
| 36 | .37 | I felt very frustrated when my sister/brother was too busy to play with me or give me her/his attention. |
| 86 | .36 | I used to enjoy parties and social events more if my brother/sister was there, too. |
| 47 | .36 | I sometimes borrowed my sister's/ brother's possessions and accidentally broke or lost them. |
| 45 | .35 | I often let my sister/brother speak for me instead of speaking for myself. |
| Factor 5 Caretaking (12 items) | | |
| 3 | .74 | I was responsible for caring for my brother/sister when my parents were away. |
| 18 | .72 | I was rarely given the responsibility of taking care of my sister/brother. (R) |

Note: (R) indicates that scoring was reversed on these items.

Table 4 continued

| | | |
|---|---|---|
| 5 | .65 | Instead of going to my parents, I sometimes disciplined my brother/sister myself when he/she did something wrong. |
| 29 | .63 | I felt like more of a parent than a sibling to my brother/sister. |
| 112 | .57 | I used to talk for my brother/sister if he/she felt too shy to talk for himself/herself. |
| 31 | .53 | My parents allowed me to boss my brother/sister around. |
| 67 | .46 | I never felt responsible for my sister's/brother's misbehavior. (R) |
| 120 | .45 | I could control my sister's/brother's behavior quite easily. |
| 41 | .43 | I liked to try to teach my sister/brother new things. |
| 81 | .40 | My sister/brother took more responsibility around the house than I did. (R) |
| 40 | .35 | If my parents were away, I usually turned to my brother/sister for what I needed. (R) |
| 121 | .33 | My brother/sister often helped me with my schoolwork. (R) |
| Factor 6 Rivalry (14 items) | | |
| 52 | .72 | I frequently used to worry that one or both of my parents favored my brother/sister over me. |
| 113 | .63 | I was jealous when my sister/brother received special privileges that I did not get. |
| 115 | .60 | I frequently felt intensely envious of my sister/brother. |

Note: (R) indicates that scoring was reversed on these items.

Table 4 continued

| | | |
|---|---|---|
| 8 | .55 | It seemed like my sister/brother and I were always competing for our parents' attention. |
| 76 | .55 | I used to feel that my parents compared me to my brother/sister a lot. |
| 123 | .50 | My parents always treated my brother/sister and me the same. (R) |
| 74 | .45 | I often felt upset when my brother/sister got a new toy or clothes. |
| 44 | .44 | I was pleased when my parents made more of a fuss over my achievements than those of my brother/sister. |
| 20 | .44 | I used to feel really happy when I got a better report card than my sister/brother. |
| 105 | .43 | I was upset if my sister/brother got off more easily than I did in terms of doing household chores. |
| 53 | .39 | I was concerned about whether I was more attractive than my sister/brother. |
| 89 | .38 | I tried to avoid competing with my sister/brother. (R) |
| 39 | .38 | I felt that my parents treated us as individuals. (R) |
| 93 | .34 | I frequently felt that my sister/brother was trying to outdo me. |

Note: (R) indicates that scoring was reversed on these items.

Item-total correlations were then computed for each factor in the six-factor solution. Average item-total correlations for each factor were .63 for Factor 1, .61 for Factor 2, .59 for Factor 3, .61 for Factor 4, .57 for Factor 5, and .58 for Factor 6. Most of the items had correlations above .40; only one, Item 47 on Factor 4, was below this figure, at .38. The item-total correlations ranged from .38 to .78.

Reliabilities were also computed for each factor, using the Kuder Richardson formula. The coefficient alpha reliabilities yielded were .94 for Factor 1, .89 for Factor 2, .88 for Factor 3, .89 for Factor 4, .82 for Factor 5, and .85 for Factor 6. Based on the reliability of the factors and their theoretical meaningfullness, it was decided to retain the six-factor solution for the final version of the SRQ. The final version consists of 101 items: 25 items on Scale 1, 17 items on Scale 2, 17 items of Scale 3, 16 items on Scale 4, 12 items on Scale 5, and 14 items on Scale 6. Twenty-two items from the original pool were eliminated. No item appears on more than one scale. The six factor scales are labelled according to their predominant content as the Companionship Scale, the Loyalty Scale, the Hostility Scale, the Identification Scale, the Caretaking Scale, and the Rivalry Scale, respectively. The items of the questionnaire were

re-randomized. The final version of the SRQ may be found in Appendix C.

Correlations between the scales were then examined. The results of this analysis are contained in Table 5. Companionship and Loyalty were highly positively correlated, as were Companionship and Identification, and Loyalty and Identification. Also Hostility and Rivalry were highly positively correlated. These correlations are not very surprising in light of the fact that items from these scales tended to group together in the two- and three-factor solutions. There were significant negative correlations between Companionship and Hostility and between Loyalty and Hostility. There was significant negative correlation to a lesser degree between Identification and Hostility, as well as between Companionship and Rivalry. Loyalty also showed low, but significant negative correlation with Rivalry. Identification bore a low, significant positive correlation with Rivalry. Caretaking appeared to be the most independent of the scales, showing only low near significant positive correlation with Hostility, and low significant negative correlation with Identification. The Caretaking Scale was not significantly correlated with Companionship, Loyalty, or Rivalry.

**Table 5**

**Intercorrelations Among SRQ Factor Scales: Study 1**

| Factor | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Companionship | - | .72*** | -.45*** | .60*** | -.04 | -.27*** |
| 2. Loyalty | | - | -.45*** | .65*** | -.05 | -.17** |
| 3. Hostility | | | - | -.21*** | .12* | .55*** |
| 4. Identification | | | | - | -.27*** | .14* |
| 5. Caretaking | | | | | - | .01 |
| 6. Rivalry | | | | | | - |

*p < .05
**p < .01
***p < .001

Second-order factor analysis was performed upon the correlations in Table 5. Three second-order factors were extracted. The first second-order factor was composed of the Companionship, Loyalty, and Identification factors. The second second-order factor was composed of the Hostility and Rivalry factors. Finally, the third second-order factor was the Caretaking factor. Together, these three second-order factors accounted for 85% of the variance in the correlations between factors.

# CHAPTER III

# STUDY 2: CROSS-VALIDATION AND PREDICTIVE VALIDITY OF THE SIBLING RELATIONSHIP QUESTIONNAIRE

The purpose of Study 2 was threefold. First, it provided a cross-validation of the SRQ factor scales. The second purpose was to examine the relationship of the emotional components measured by the SRQ to family and sibling structure variables. The third aim was to compare the predictive power of the SRQ factor scales to that of sibling structure variables in predicting personality features. Study 2 thus provided a test of the predictive validity of the SRQ. In this chapter, the method and results of Study 2 will be described.

## Method

### Subjects

Subjects for Study 2 were undergraduate students enrolled in psychology classes at the University of North Dakota. There were three restrictions placed upon students signing up for the study. Potential subjects had to have at least one sibling within 11 years of their own age. Members of a twin pair or any multiple birth were restricted from participation. Finally, in order to obtain an independent sample, students who participated in Study 1 were restricted from participating in Study 2. In

signing up to participate in this study, subjects were asked to indicate their gender and the age-and-sex status for their closest-in-age sibling (i.e., older or younger, male or female). In this way it was insured that there were at least 12 subjects from each of eight two-sibling combinations possible.

A total of 141 subjects participated in Study 2, 71 females (50.35%) and 70 males (49.65%). The subjects all received class credit for their participation in accordance with the amount of time spent in the study.

## Instruments

Three questionnaires were utilized in Study 2. Each is described below:

### Family Information Questionnaire

This questionnaire was designed by the researcher to obtain pertinent demographic information about the subjects. It includes questions about family size, family socioeconomic status, marital status of parents, and age and sex of the subject and all siblings. A copy of the questionnaire may be found in Appendix D.

A total of thirteen demographic variables were derived from the Family Information Questionnaire (hereafter FIQ), as listed in Table 6, along with their abbreviations.

Table 6

Demographic Variables in the Family Information Questionnaire

| | |
|---|---|
| 1. | Family Socioeconomic Status (SES) |
| 2. | Parental Loss (PL) |
| 3. | Sibling Loss (SL) |
| 4. | Sex of Subject (Sex) |
| 5. | Sex of Closest-in-age Sibling (Sibsex) |
| 6. | Age Difference of Closest-in-age Sibling (Agedif) |
| 7. | Absolute Value of Age Difference (Abs. Agedif) |
| 8. | Subject's Ordinal Position (Ordpos) |
| 9. | Number of Older Brothers (NOB) |
| 10. | Number of Younger Brothers (NYB) |
| 11. | Number of Older Sisters (NOS) |
| 12. | Number of Younger Sisters (NYS) |
| 13. | Family Size (Totsib) |

Most of the items of the FIQ are straightforward questions regarding the variables in questions. Family socioeconomic status (SES) was determined by the highest educational level of the father and mother. Parents' educational level has been frequently used as a measure of socioeconomic status. Subjects were asked to report the educational level of both parents. If a parent did not

complete high school, a score of 1 was recorded for that parent. Completion of high school was scored as 2, completion of undergraduate college as 3, and completion of a graduate degree as 4. Mother's educational level (MED) and father's educational level (FED) were added together to obtain the SES score which could potentially range from 2 to 8.

Parental loss was defined as loss of a parent through either death or divorce prior to the age of 15 years. If no parental loss had occurred, this was scored as 1; if it had occurred, a score of 2 was recorded. The same criteria and scoring were applied to the variable of sibling loss: a score of 1 indicated no sibling loss prior to the age 15 had occurred, and a score of 2 was given if such a loss had occurred. Sex of subject and of closest-in-age sibling were scored as 1 if the sex was male and 2 if the sex was female.

Two measures of age difference were obtained. The actual age difference was calculated by subtracting the age of the closest-in-age sibling from the age of the subject. A positive score indicated that the subject was older and a negative score indicated that the sibling was older than the subject. The absolute value of the age difference in years was also calculated. The remaining variables and their scoring are self-explanatory.

Each subject's birth order or sibling status was obtained from this questionnaire. Two measures of birth order were examined. Variables 5, 6, and 7 yield the "relative birth order", i.e., the subject's position relative to his or her closest-in-age sibling, in relation to whom the SRQ was answered. Variables 8, 9, 10, 11, 12, and 13 determine the "absolute birth order", i.e., the subject's position among all of his or her siblings.

## Sibling Relationship Questionnaire

The final version of the SRQ as developed in Study 1 was used in Study 2 in order to assess subjects' relationships with their closest-in-age siblings (see Appendix C). Chapter II describes the format and scoring of the SRQ.

## California Psychological Inventory

The California Psychological Inventory (hereafter CPI) is a self-report personality inventory developed by Gough (1975). It consists of 480 true-false items which comprise 18 scales. The CPI is designed to evaluate interpersonal behavior and styles relevant to social interaction. Appendix E lists the scales, their abbreviations, and their descriptions (Gough, 1975). Gough (1968) divided the scales into four major classes, as indicated in Appendix E. Class I scales measure

variables involved in intrapersonal style and effectiveness. Class II scales involve interpersonal controls and values. The scales in Class III are relevant to academic guidance. Class IV scales describe broad attitudes towards life.

Only certain scales of the CPI were hypothesized to be relevant to the concerns of this investigation. Since a comparison of birth order variables with the sibling relationship factors was being made, this study focused upon the personality features in birth order research reviewed in Chapter I. These were: need for achievement, need for affiliation, conformity, sociability, and sex-role identification. Table 7 shows how CPI Scales relate to these features.

It is clear from Table 7 that need for affiliation is most difficult to measure on the CPI. Negative scorers on the Social Presence scale have been described as compliant, conforming, and hesitant (Gough, 1968), which seems rather close to Schachter's (1959) description of subjects high in need for affiliation. The personality dimensions easiest to assess on the CPI are need for achievement, conformity, and sociability, which show more direct relation to many CPI scales.

**Table 7**

**Hypothesized Relations Between Personality Features and CPI Scales**

| Personality Feature | CPI Scale(s) | Direction of Relationship |
|---|---|---|
| Need for Achievement | Dominance | Positive |
| | Capacity for Status | Positive |
| | Achievement via Conformance | Positive |
| | Achievement via Independence | Positive |
| Need for Affiliation | Social Presence | Negative |
| Conformity | Responsibility | Positive |
| | Socialization | Positive |
| | Self-control | Positive |
| | Good Impression | Positive |
| | Communality | Positive |
| Sociability | Sociability | Positive |
| | Tolerance | Positive |
| Sex-Role Identification | Femininity | Positive (females) Negative (males) |

## Procedure

The test instruments were administered to subjects in a group setting. Group size varied from 5 to 29 subjects. Before distributing the test instruments, the researcher

reviewed the subject restrictions to insure that none of the subjects present fell into a restricted category. The instruments were then distributed along with consent forms. The subjects were asked to read and sign the consent forms if they wished to participate. After this was completed, subjects were asked to fill out the FIQ. When all subjects had completed this questionnaire, the researcher read the instructions of the SRQ and asked subjects to complete this questionnaire. When all subjects had finished this, instructions for the CPI were read, and subjects were instructed to complete this test. Subjects were free to leave after completing the CPI and handing in the instruments to the researcher. The researcher was present throughout the testing session to answer any questions that arose. Most subjects took one and one-half to two hours to complete the entire battery.

## Results

This section will describe the results obtained in Study 2. Results of the data analysis will be illustrated in several different sections. In the first section below a description of the sample of subjects who participated in Study 2 will be given. The second section will show the results of a series of factor analyses on the new SRQ data in order to cross-validate the factor analytic results of Study 1. The third section below will describe

the findings regarding relationships between family and sibling structure variables and the SRQ factor scales. In the fourth section, results relevant to the prediction of the five personality characteristics listed in Table 8 will be described. Results from prediction by both SRQ factors and sibling structure variables will be presented. In the fifth section, a description of additional significant findings will be given. A final section will provide a summary of the significant results obtained in Study 2.

## Description of Sample

A total of 141 subjects completed the battery of questionnaires for Study 2, 71 females and 70 males. Table 8 shows the means and standard deviations for a number of the family demographic and sibling structure variables for male and female subjects. The significance of the differences between the means of male and female subjects on these variables was examined with t-tests. As Table 8 shows, these tests all yielded non-significant results. Rounding off the figures in Table 8, it can be seen that the average subject was approximately 21 years of age with the closest-in-age sibling 2 years apart from him or her. This average subject had an ordinal position of third-born in a family of 4 children. The average subject had one each of older brothers, younger brothers,

Table 8

Means and Standard Deviations of Family and Sibling Structure Variables for Male and Female Subjects.

| | Males | | | Females | | | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | N | Mean | SD | N | Mean | SD | N | Mean | SD | t | p |
| Mother's Educational Level | 70 | 2.21 | 0.63 | 70a | 2.17 | 0.51 | 140a | 2.19 | 0.57 | 0.44 | ns |
| Father's Educational Level | 69a | 2.23 | 0.75 | 69a | 2.14 | 0.65 | 138a | 2.19 | 0.70 | 0.73 | ns |
| Socioeconomic Status | 69a | 4.45 | 1.24 | 69a | 4.31 | 1.03 | 138a | 4.38 | 1.14 | 0.67 | ns |
| Age | 70 | 20.36 | 4.61 | 71 | 21.11 | 5.92 | 141 | 20.73 | 5.31 | -0.85 | ns |
| Sibling Age | 70 | 21.03 | 5.08 | 71 | 21.17 | 6.60 | 141 | 21.10 | 5.88 | -0.14 | ns |
| Age Difference | 70 | -0.67 | 3.03 | 71 | 0.06 | 2.52 | 141 | -0.36 | 2.79 | -1.31 | ns |
| Absolute Age Difference | 70 | 2.56 | 1.73 | 71 | 2.17 | 1.26 | 141 | 2.36 | 1.52 | 1.52 | ns |
| Ordinal Position | 70 | 2.68 | 1.83 | 71 | 2.62 | 1.49 | 141 | 2.65 | 1.66 | 0.24 | ns |
| Number of Older Brothers | 70 | 0.81 | 1.12 | 71 | 0.74 | 0.91 | 141 | 0.78 | 1.01 | 0.40 | ns |
| Number of Younger Brothers | 70 | 0.74 | 0.94 | 71 | 0.80 | 1.02 | 141 | 0.77 | 0.98 | -0.36 | ns |
| Number of Older Sisters | 70 | 0.87 | 1.08 | 71 | 0.87 | 1.00 | 141 | 0.87 | 1.04 | -0.01 | ns |
| Number of Younger Sisters | 70 | 0.61 | 0.86 | 71 | 0.72 | 1.19 | 141 | 0.67 | 1.03 | -0.60 | ns |
| Total Family Size | 70 | 4.04 | 1.99 | 71 | 4.14 | 2.21 | 141 | 4.09 | 2.10 | -0.28 | ns |

[a]Some subjects failed to report on this variable.

older sisters, and younger sisters. His or her parents were both high school graduates.

The distribution of ordinal positions in this sample of subjects was examined. These results are shown in Table 9. Among both males and females, first- and second-born subjects were most numerous, in total comprising over 50% of the subjects. Third- and fourth-born subjects were also fairly numerous. Later ordinal positions were less prevalent. As in Study 1, this is likely due to the lower frequency of the larger family sizes. A Chi-square test performed on the difference in distribution of ordinal positions between male and female subjects was non-significant (Chi-square = 3.53, $p = .90$). The difference in distribution of ordinal positions between the samples of Study 1 and Study 2 were examined with a Chi-square test. The result indicated no significant differences in distribution of this variable between the two samples of subjects (Chi-square = 4.75, $p > .90$).

**Table 9**

**Distribution of Ordinal Positions Among Male and Female Subjects: Study 2**

| | Males | | Females | | Total | |
|---|---|---|---|---|---|---|
| Ordinal Position | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| First-born | 21 | 14.89 | 17 | 12.06 | 38 | 26.95 |
| Second-born | 19 | 13.48 | 24 | 17.02 | 43 | 29.08 |
| Third-born | 12 | 8.51 | 12 | 8.51 | 24 | 17.02 |
| Fourth-born | 8 | 5.67 | 11 | 7.80 | 19 | 13.48 |
| Fifth-born | 5 | 3.55 | 3 | 2.13 | 8 | 5.67 |
| Sixth-born | 3 | 2.13 | 2 | 1.42 | 5 | 3.55 |
| Seventh-born | 1 | 0.71 | 2 | 1.42 | 3 | 2.13 |
| Eighth-born | 0 | 0 | 0 | 0 | 0 | 0 |
| Ninth-born | 0 | 0 | 0 | 0 | 0 | 0 |
| Tenth-born | 0 | 0 | 0 | 0 | 0 | 0 |
| Eleventh-born | 1 | 0.71 | 0 | 0 | 1 | 0.71 |
| Total | 70 | 49.65 | 71 | 50.35 | 141 | 100.00 |

Table 10 shows the distribution of relative birth order among male and female subjects, along with the means, standard deviations, and ranges of age differences among these groups. T-tests performed on the differences between male and female subjects in each group were non-significant except among subjects with older sisters. Males with older sisters as closest-in-age siblings were significantly younger in relation to their sisters than were females in this group. A Chi-square test of the distribution of relative birth order among male and female subjects was also non-significant (Chi-square = 1.33, $p$ = .72). This suggests that relative birth order was equally distributed among male and female subjects. At least 14 subjects were obtained in each group.

Taken together, the above results indicate that in relation to family demographic variables and sibling structure variables there were very minimal differences between the male and female subjects in Study 2.

## Cross-Validation of the Factor Structure of the SRQ

The factor analytic study of the original SRQ in Study 1 yielded six factor scales which were then utilized to develop the final version of the SRQ. This final version was thus composed of six factor scales: Companionship, Loyalty, Hostility, Identification, Caretaking, and Rivalry. In Study 2, the new data from

Table 10

**Relative Birth Order of Siblings and Age Differences for Male and Female Subjects: Study 2**

| Relative Birth Order of Sibling | Age Difference Males N | Mean | SD | Range | Age Difference Females N | Mean | SD | Range | t | p |
|---|---|---|---|---|---|---|---|---|---|---|
| Older Brother | 19 | -3.21 | 1.61 | -6 - -1 | 19 | -2.37 | 1.49 | -5 - 0[a] | -1.66 | ns |
| Younger Brother | 15 | 4.33 | 2.94 | 2 - 12 | 19 | 2.42 | 1.39 | 1 - 5 | -0.44 | ns |
| Older Sister | 17 | -3.05 | 2.28 | -8 - -1 | 19 | -1.79 | 0.98 | -5 - -1 | -2.13 | .05 |
| Younger Sister | 19 | 1.74 | 0.99 | 1 - 4 | 14 | 2.07 | 1.07 | 1 - 5 | -0.93 | ns |

[a]One subject's closest-in-age sibling was a brother adopted in infancy a few months before the subject was born.

the revised SRQ were subjected to principal axis factor analyses with Varimax (orthogonal) rotation for 2 through 8 factor solutions. As in Study 1, a series of factor solutions was generated. Once again the six-factor solution was judged to be most satisfactory. Results of the other factor solutions appear in Appendix F.

The six factor solution obtained with the new sample of subjects was very similar to that in Study 1. However, the strength of the factors was ordered somewhat differently. Companionship was the first factor, followed in order of strength by Identification, Caretaking, Hostility, Rivalry, and Loyalty. The six factors accounted for 42% of the test variance. A few items shifted from one factor to another, but the items with the highest loadings on each factor remained in the same factors as they had appeared in Study 1. Appendix G shows the distribution of items in the factors where each item had its highest loading.

Table 11 shows the correlations between the factors from the six-factor solution. Significant positive correlations were observed between Companionship and Loyalty and Companionship and Identification. Loyalty and Identification were again positively correlated, as in Study 1. Hostility was positively correlated with Caretaking and with Rivalry. Companionship and Loyalty showed negative correlations with Hostility and Rivalry.

Caretaking showed the least amount of correlation with any of the other factors. The pattern of correlations is very close to that observed in Study 1. The only difference is that Identification did not correlate significantly with Rivalry, while in Study 1, there was a low significant correlation between these two factors.

Table 11

Intercorrelations Among SRQ Factor Scales: Study 2

| Factor | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1. Companionship | - | .69** | -.45** | .52** | .04 | -.38** |
| 2. Loyalty | | - | -.40** | .60** | .02 | -.24** |
| 3. Hostility | | | - | -.18* | .19* | .38** |
| 4. Identification | | | | - | -.30* | .07 |
| 5. Caretaking | | | | | - | .09 |
| 6. Rivalry | | | | | | - |

*p < .05

**p < .001

## Relationships Between Family Demographic and Sibling Structure Variables and SRQ Factor Scales

Table 12 shows the correlations between family demographic and sibling structure variables obtained from

the FIQ and the SRQ factor scales. Examination of Table 12 indicates that the sex of the closest-in-age sibling had a significant relationship to scores on the Companionship scale. This was a positive correlation, indicating that subjects with female closest-in-age siblings had higher scores on Companionship. Sex of the subject had a near significant correlation ($p = .07$) with Companionship scores in the negative direction. Thus, there was a trend for male subjects to score more highly on Companionship. No other family variables approached significant correlations with this scale.

On the Loyalty scale, subject's sex was significantly correlated in a negative direction. Male subjects had significantly higher scores on the Loyalty scale. There was a near significant trend ($p = .06$) for subjects with female closest-in-age siblings to score more highly on Loyalty. There was also a trend for subjects with fewer older brothers to score more highly on Loyalty ($p = .06$). No other variables bore significant or near significant relationships to this scale.

In looking at the Hostility scale, Table 12 shows that none of the variables bore significant or near significant correlations with this factor. Scores on the Hostility scale were not related to any of the family or sibling structure variables.

Table 12

**Correlations Between SRQ Factors Scales and Family and Sibling Structure Variables**

| SRQ Factor | SES | Parental Loss | Sibling Loss | Sex | Sibling Sex | Agedif | Abs Agedif | Ordpos | NOB | NYB | NOS | NYS | Totsib |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Companionship | -.02 | .12 | .01 | -.16* | .18** | -.07 | .04 | -.06 | -.14 | .02 | .04 | .09 | .01 |
| Loyalty | .10 | .10 | .03 | -.23** | .16* | .05 | -.12 | -.09 | -.15* | .02 | .00 | .08 | -.02 |
| Hostility | .01 | -.01 | -.08 | .09 | .01 | -.08 | .02 | -.03 | -.03 | .02 | -.02 | -.03 | -.03 |
| Identification | .10 | .01 | -.17* | -.17** | -.02 | .27*** | .02 | -.33*** | -.25*** | .14 | -.28*** | .00 | -.19** |
| Caretaking | -.03 | .05 | -.12 | .00 | .02 | -.75*** | .14 | .31*** | .16* | -.31*** | .35*** | -.22** | .00 |
| Rivalry | .10 | -.06 | -.17* | .09 | -.27*** | .05 | .05 | .04 | .11 | .00 | -.05 | -.16* | -.05 |

Note: Agedif = Age Difference of Closest-in-age Sibling; Abs. Agedif. = Absolute Value of Age Difference; Ordpos = Subject's Ordinal Position; NOB = Number Older Brothers; NYB = Number Younger Brothers; NOS = Number Older Sisters; NYS = Number Younger Sisters; Totsib = Family Size.

* $p < .10$
** $p < .05$
*** $p < .01$

The Identification scale, on the other hand, was significantly related to a number of sibling structure variables. The significant negative correlation between Identification and Sex resulted because male subjects obtained higher scores on this scale. The significant positive correlation between this scale and Age Difference suggests that a greater positive age difference, i.e., the subject was older than the closest-in-age sibling, was associated with higher Identification scale scores. Also subjects with earlier ordinal positions and fewer older brothers and older sisters scores higher on Identification, as indicated by the significant negative correlations between Identification and the variables Ordinal Position, Number of Older Brothers and Number of Older Sisters. Having a smaller family size also correlated with higher scores on Identification, as seen by the significant negative correlation between Family Size and Identification. In addition, there was a near significant trend ($p = .055$) for the experience of sibling loss to be associated with lower Identification scores.

The Caretaking scale also showed a number of significant correlations with the sibling structure variables. Higher Caretaking scores were positively related to negative age difference between the subject and the closest-in-age sibling, with later ordinal position, and with larger numbers of older sisters. The

significant negative correlation between Caretaking and Number of Younger Brothers and Sisters indicates that having fewer younger male and/or female siblings was associated with higher Caretaking scores. The variable Number of Older Brothers showed a near significant positive correlation ($p$ = .06) with Caretaking as well.

Rivalry showed a negative correlation with Sibling Sex, indicating that male closest-in-age siblings were associated with higher Rivalry scale scores. There was also a near significant negative correlation ($p$ = .055) between Rivalry and Number of Younger Sisters. There was thus a trend for higher Rivalry scores among subjects with fewer younger female siblings. In addition, there was a near significant correlation ($p$ = .051) with Sibling Loss. Subjects who had lost a sibling showed a tendency to obtain lower Rivalry scores.

## Prediction of Personality Features from SRQ Factors Versus Sibling Structure Variables

In this section, results pertaining to the prediction of personality by SRQ factors and sibling structure variables will be presented. Two types of data analyses were carried out in order to examine the predictive power of sibling relationship versus structure variables. Multiple regression analyses were carried out upon the CPI scales listed in Table 8 as related to the personality

characteristics in question, namely, need for achievement, need for affiliation, conformity, sociability, and sex-role identification. These analyses were carried out using different combinations of predictor variables. First the six SRQ factors derived from the Study 1 factor analysis were used as predictors. Next, the sibling structure variables were broken down into different classes, and each class used in the regression equation. The classes were: (1) relative birth order variables, including sex of subject (Sex), a variable labelled "Group", which identified the relative position of the closest-in-age sibling as older brother, younger brother, older sister, or younger sister, and the variable age difference between the two siblings (Abs. Agedif), and (2) absolute birth order variables, including sex of subject (Sex), subject's ordinal position (Ordpos), number of older brothers (NOB), older sisters (NOS), younger brothers (NYB), and younger sisters (NYS), and total number of children in the family (Totsib). This second class among sibling structure variables had to be broken down further into two subsets because the variables were not independent of each other, e.g., if Ordinal position was 1, the Number of Older Brothers and Number of Older Sisters were 0. Thus one regression equation included Sex and numbers of older and younger brothers and sisters, as well as certain two-way interactions among the variables. Another regression

equation included the variables Sex, Ordinal Position, and Family Size, as well as certain two-way interactions between these variables.

The second method of data analysis for testing this study's hypotheses utilized canonical correlation analyses for those personality features related to groups of CPI scales, namely, need for achievement, conformity, and sociability. Again, the analyses were carried out separately utilizing SRQ factors and the two classes of sibling structure variables as predictor variables. In these analyses it was not necessary to subdivide the absolute birth order variables into two groups.

In the pages that follow, the results pertaining to each of the five personality features will be presented in turn.

## Need for Achievement

**SRQ Factors.** Tables 13 through 15 present the results of the multiple regression analyses of SRQ factors upon CPI scales measuring need for achievement. These were Dominance, Capacity for Status, Achievement via Conformance, and Achievement via Independence. The multiple regression of SRQ factors upon Capacity for Status yielded no significant results. Tables 13 through 15 indicate that of the six SRQ factors, Hostility was the most powerful in predicting need for achievement, being a

significant predictor of both Achievement via Conformance and Achievement via Independence. Higher scores on the Hostility scale predicted higher scores on these two CPI scales. The Loyalty scale was a significant predictor of Dominance such that higher Loyalty scores predicted lower Dominance scores. None of the other factors reached significance in predicting scales related to need for achievement.

Table 13

**Multiple Regression: Predicting CPI Dominance from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 2.10 | 0.07 | n.s. |
| Loyalty | 1 | 126.68 | 4.13 | .04 |
| Hostility | 1 | 12.42 | 0.40 | n.s. |
| Identification | 1 | 71.26 | 2.32 | n.s. |
| Caretaking | 1 | 0.12 | 0.00 | n.s. |
| Rivalry | 1 | 92.54 | 3.02 | n.s.* |
| Residual | 121 | 3713.05 | | |
| Total | 127 | 3942.99 | | |

$R^2$ = .058316, n.s.

*p < .10

Table 14

Multiple Regression: Predicting CPI Achievement via Conformance from SRQ Factor Scales

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 82.51 | 3.89 | n.s.* |
| Loyalty | 1 | 52.08 | 2.45 | n.s. |
| Hostility | 1 | 127.04 | 5.98 | .02 |
| Identification | 1 | 11.15 | 0.53 | n.s. |
| Caretaking | 1 | 17.18 | 0.81 | n.s. |
| Rivalry | 1 | 19.94 | 0.94 | n.s. |
| Residual | 121 | 2568.63 | | |
| Total | 127 | 2873.62 | | |

$R^2 = .106135$, $p < .03$

Table 15

**Multiple Regression: Predicting CPI Achievement via Independence from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 8.23 | 0.46 | n.s. |
| Loyalty | 1 | 11.10 | 0.62 | n.s. |
| Hostility | 1 | 112.65 | 6.27 | .01 |
| Identification | 1 | 14.52 | 0.21 | n.s. |
| Caretaking | 1 | 3.76 | 2.45 | n.s. |
| Rivalry | 1 | 44.04 | 2.45 | n.s. |
| Residual | 121 | 2172.56 | | |
| Total | 127 | 2429.50 | | |

$R^2 = .105759$, $p < .03$

Table 16 presents the canonical correlation analysis of the SRQ factors upon the group of CPI scales related to need for achievement. The first two canonical correlations were significant. Among the SRQ factors, the predictor variables, Hostility, Caretaking and Rivalry had the highest loadings in the first canonical variable. These were .58, .53, and .50, respectively. The remaining factors showed correlations below .30 and did not contribute strongly to the first canonical variable. The second canonical variable for the SRQ factors showed the

strongest correlations with Loyalty, -.76, Hostility, .50, and Caretaking, -.31. The other factors correlated below .30. The first variable describes a relationship with a combination of antagonistic, competitive and nurturant features. The second factor describes a more purely hostile relationship, with a negation of loyal or nurturant aspects.

Table 16

**Canonical Correlation: Predicting Need for Achievement (CPI Dominance, Capacity for Status, Achievement via Conformance, Achievement via Independence) from SRQ Factor Scales**

| Predictor Variables | Correlations with Canonical Variables | | Criterion Variables | Correlations with Canonical Variables | |
|---|---|---|---|---|---|
| Companionship | .08 | -.27 | Do | -.29 | .58 |
| Loyalty | .03 | -.76 | Cs | -.12 | .54 |
| Hostility | .58 | .50 | Ac | .52 | .85 |
| Identification | -.24 | -.18 | Ai | .82 | .14 |
| Caretaking | .53 | -.31 | | | |
| Rivalry | .50 | .08 | | | |

| Canonical Correlations | Num df | Den df | F | p |
|---|---|---|---|---|
| 1 .36 | 24 | 412.86 | 1.80 | .01 |
| 2 .31 | 15 | 328.91 | 1.70 | .05 |

Inspection of the canonical variables of the criterion variables, the CPI scales, indicates that the first canonical variable is characterized by high Achievement via Conformance and Achievement via Independence, the correlations with these scales being .52 and .82, respectively. Dominance and Capacity for Status did not contribute strongly to this variable, with correlations below .30. The second canonical variable of the CPI scales showed high correlations with Dominance, Capacity for Status, and Achievement via Conformance, .58, .54, .85, respectively. The first canonical variable thus reflects a narrower, task-oriented type of achievement orientation, while the second includes need for achievement in interpersonal settings as well.

The canonical correlation between the first canonical variables was .36. Thus, high Hostility, Caretaking and Rivalry scores predicted high need for achievement in task-oriented settings. The correlation between the second set of canonical variables was .31. High Hostility scores, in combination with low Loyalty and Caretaking scores, predicted high achievement motivation in both interpersonal and task-oriented settings.

**Relative Birth Order.** Table 17 shows the results of multiple regression analysis of relative birth order variables and their interactions upon CPI Capacity for

Status. Absolute Age Difference was a significant predictor of this scale. Greater age difference between subject and closest-in-age sibling predicted higher scores on this scale.

Table 17

**Multiple Regression: Predicting CPI Capacity for Status from Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 42.36 | 3.10 | n.s.* |
| Group | 3 | 94.07 | 2.30 | n.s.* |
| Absolute Age Difference | 8 | 248.21 | 2.27 | .03 |
| Sex x Group | 3 | 38.91 | 0.95 | n.s. |
| Sex x Absolute Age Difference | 4 | 54.77 | 1.00 | n.s. |
| Group x Absolute Age Difference | 12 | 242.95 | 1.48 | n.s. |
| Sex x Group x Absolute Age Difference | 6 | 128.63 | 1.57 | n.s. |
| Residual | 103 | 1406.23 | | |
| Total | 140 | 2235.87 | | |

$R^2 = .371062$, $p < .03$

* $p < .10$

Table 18 shows the results for CPI Achievement via Conformance. Sex was a significant predictor of this

scale, with females scoring higher. Relative birth order variables had no predictive effect upon other CPI scales related to need for achievement.

Table 18

**Multiple Regression: Predicting CPI Achievement via Conformance from Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 94.58 | 4.18 | .04 |
| Group | 3 | 76.60 | 1.13 | n.s. |
| Absolute Age Difference | 8 | 150.55 | 0.83 | n.s. |
| Sex x Group | 3 | 121.47 | 1.79 | n.s. |
| Sex x Absolute Age Difference | 4 | 42.85 | 0.47 | n.s. |
| Group x Absolute Age Difference | 12 | 309.26 | 1.14 | n.s. |
| Sex x Group x Absolute Age Difference | 6 | 93.62 | 0.69 | n.s. |
| Residual | 103 | 2328.13 | | |
| Total | 140 | 3185.03 | | |

$R^2$ = .269040, n.s.

Canonical correlation of relative birth order variables upon this set of CPI scales yielded no significant results.

**Absolute Birth Order.** In both subsets of absolute birth order variables, none of the multiple regression analyses on individual CPI scales related to need for achievement showed significant results.

## Need for Affiliation

**SRQ Factors.** It was suggested that need for affiliation was related in a negative direction to CPI Social Presence. Subjects with high need for affiliation would thus obtain lower scores on this scale. None of the SRQ factors significantly predicted Social Presence.

**Relative Birth Order.** In multiple regression analysis of relative birth order variables upon CPI Social Presence, there were no significant results.

**Absolute Birth Order.** Table 19 shows the results of multiple regression analysis of the first subset of absolute birth order variables upon CPI Social Presence. Number of Younger Sisters and the interactions between Sex and Number of Younger Brothers and Sex and Number of Younger Sisters all significantly predicted Social Presence. Higher Number of Younger Sisters predicted lower Social Presence. In the interaction of Sex and Number of Younger Brothers, females with high Number of Younger Brothers obtained lower scores on Social Presence, while this variable had less effect upon males. In the

interaction of Sex and Number of Younger sisters, for males and females, higher Number of Younger Sisters predicted lower Social Presence, and the effect was more marked for males. Number of Younger Brothers approached significance ($p = .051$) in predicting this scale, with a tendency for higher scores on this scale. The second subset of absolute birth order variables were not significant predictors of Social Presence.

Table 19

**Multiple Regression: Predicting CPI Social Presence From Absolute Birth Order Variables (Sex, Sibling Structure) and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 0.04 | 0.00 | n.s. |
| No. Older Brothers | 1 | 17.63 | 0.60 | n.s. |
| No. Younger Brothers | 1 | 113.76 | 3.87 | n.s.* |
| No. Older Sisters | 1 | 1.90 | 0.06 | n.s. |
| No. Younger Sisters | 1 | 277.33 | 9.44 | .003 |
| Sex x No. Older Brothers | 1 | 51.52 | 1.75 | n.s. |
| Sex x No. Younger Brothers | 1 | 204.06 | 6.95 | .009 |
| Sex x No. Older Sisters | 1 | 0.05 | 0.00 | n.s. |
| Sex x No. Younger Sisters | 1 | 251.55 | 8.56 | .004 |
| Residual | 131 | 3648.58 | | |
| Total | 140 | 4467.25 | | |

$R^2 = .138490$, $p < .02$

* $p < .10$

**Conformity**

**SRQ Factors.** SRQ Factors significantly predicted three of the five CPI scales related to conformity. Tables 20 through 22 show the results of multiple

regression analyses for CPI Socialization, Self-control, and Good Impression. On Socialization (Table 20) Companionship, Identification, and Rivalry all reached significance as predictors. Higher Companionship and Rivalry scores predicted greater Socialization, while higher Identification scores predicted lower scores on Socialization. For Self-control (Table 21) both Hostility and Rivalry were highly significant predictors, with higher Hostility and Rivalry scores predicting grater Self-control. Hostility was also a significant predictor of Good Impression, as shown in Table 22. Higher scores on the Hostility scale were associated with higher scores on Good Impression.

Table 20

**Multiple Regression: Predicting CPI Socialization from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 254.43 | 6.74 | .01 |
| Loyalty | 1 | 56.46 | 1.50 | n.s. |
| Hostility | 1 | 71.73 | 1.90 | n.s. |
| Identification | 1 | 245.03 | 6.49 | .01 |
| Caretaking | 1 | 16.85 | 0.45 | n.s. |
| Rivalry | 1 | 165.94 | 4.40 | .04 |
| Residual | 121 | 4568.24 | | |
| Total | 127 | 5306.93 | | |

$R^2 = .139193$, $p < .005$

Table 21

Multiple Regression: Predicting CPI Self-control from SRQ Factor Scales

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 127.21 | 2.35 | n.s. |
| Loyalty | 1 | 19.48 | 0.36 | n.s. |
| Hostility | 1 | 641.84 | 11.83 | .0008 |
| Identification | 1 | 102.90 | 1.90 | n.s. |
| Caretaking | 1 | 19.73 | 0.36 | n.s. |
| Rivalry | 1 | 389.58 | 7.18 | .008 |
| Residual | 121 | 6562.73 | | |
| Total | 127 | 7932.86 | | |

$R^2 = .172717$, $p < .007$

Table 22

**Multiple Regression: Predicting CPI Good Impression From SRQ Factors Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 30.88 | 1.18 | n.s. |
| Loyalty | 1 | 38.64 | 1.48 | n.s. |
| Hostility | 1 | 336.00 | 12.48 | .0005 |
| Identification | 1 | 10.56 | 0.40 | n.s. |
| Caretaking | 1 | 3.31 | 0.13 | n.s. |
| Rivalry | 1 | 18.66 | 0.71 | n.s. |
| Residual | 121 | 3163.76 | | |
| Total | 127 | 3752.00 | | |

$R^2 = .156781$, $p < .002$

The results of canonical correlation analysis of SRQ factors upon the CPI scales related to conformity are shown in Table 23. The first two canonical correlations were significant. Hostility and Rivalry showed high positive correlations with the first canonical predictor variable, .87 and .63, respectively. The remaining factors showed correlations below .30. The second canonical variable for the predictor variables was defined by Identification, which had a positive correlation, .64, on the variable, and by Caretaking, which had a negative

correlation, -.34, on the variable. Thus, the first canonical predictor variable reflects hostility and competition while the second is described by idealizing and dependent attitudes towards the sibling.

Table 23

**Canonical Correlation: Predicting Conformity (CPI Responsibility, Socialization, Self-control, Good Impression, Communality) from SRQ Factor Scales**

| Predictor Variables | Correlations with Canonical Variables | | Criterion Variables | Correlations with Canonical Variables | |
|---|---|---|---|---|---|
| Companionship | -.26 | -.07 | Re | .08 | -.23 |
| Loyalty | -.21 | .08 | So | .47 | -.62 |
| Hostility | .87 | .23 | Sc | .88 | -.18 |
| Identification | -.08 | .64 | Gi | .76 | .29 |
| Caretaking | .07 | -.34 | Cm | .13 | .02 |
| Rivalry | .63 | -.19 | | | |

| Canonical Correlations | | Num df | Den df | F | p |
|---|---|---|---|---|---|
| 1 | .46 | 30 | 470.00 | 2.25 | .0002 |
| 2 | .37 | 20 | 392.31 | 1.82 | .02 |

Among the canonical variables for the criterion variables, the CPI Socialization, Self-control, and Good Impression scales all had positive high correlations with

the first variable. The correlations were .47, .88, and .76, respectively. The second variable correlated highly only with Socialization, in a negative direction, -.62. Thus, the first variable reflects social maturity, conformity, self-control, and concern about what others think of one. The second variable reflects a lack of maturity and lack of conformity to the opinions of others.

The first canonical correlation was .46. This indicates that higher Hostility and Rivalry scores predicted higher conformity. The second canonical correlation of .37 indicates that higher Identification and lower Caretaking scores predicted lower conformity.

**Relative Birth Order.** Tables 24 through 26 show the results of multiple regression analyses of relative birth order variables upon three of the CPI scales related to conformity, Responsibility, Socialization, and Self-control. These variables had no effect upon Good Impression and Communality. Among these variables, Sex was the only one that significantly predicted Responsibility and Socializations. Females were higher on both of these scales. On the scale Self-control, the interaction of Sex, Group, and Absolute Age Difference was a significant predictor. The meaning of this interaction was determined by inspection of means of different groups derived when subjects were divided into high and low groups

on these variables. Among males two conditions combined to predict higher scores on Self-control. Having a female as closest-in-age sibling, either younger or older, was one condition. In addition, having a larger age difference from this sister predicted higher Self-control scores. For females, no clear pattern emerged.

Table 24

**Multiple Regression: Predicting CPI Responsibility From Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 76.98 | 3.94 | .05 |
| Group | 3 | 86.52 | 1.47 | n.s. |
| Absolute Age Difference | 8 | 106.99 | 0.68 | n.s. |
| Sex x Group | 3 | 99.79 | 1.70 | n.s. |
| Sex x Absolute Age Difference | 4 | 85.78 | 1.10 | n.s. |
| Group x Absolute Age Difference | 12 | 281.50 | 1.20 | n.s. |
| Sex x Group x Absolute Age Difference | 6 | 199.10 | 1.70 | n.s. |
| Residual | 103 | 2014.10 | | |
| Total | 140 | 3141.04 | | |

$R^2 = .358777$, $p < .04$

Table 25

**Multiple Regression: Predicting CPI Socialization From Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 223.39 | 5.70 | .02 |
| Group | 3 | 160.94 | 1.37 | n.s. |
| Absolute Age Difference | 8 | 222.39 | 0.71 | n.s. |
| Sex x Group | 3 | 148.46 | 1.26 | n.s. |
| Sex x Absolute Age Difference | 4 | 94.87 | 0.61 | n.s. |
| Group x Absolute Age Difference | 12 | 551.85 | 1.17 | n.s. |
| Sex x Group x Absolute Age Difference | 6 | 397.97 | 1.69 | n.s. |
| Residual | 103 | 4034.12 | | |
| Total | 140 | 5678.61 | | |

$R^2$ = .289593, n.s.

Table 26

**Multiple Regression: Predicting CPI Self-control From Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 81.80 | 1.48 | n.s. |
| Group | 3 | 82.91 | 0.50 | n.s. |
| Absolute Age Difference | 8 | 241.63 | 0.55 | n.s. |
| Sex x Group | 3 | 418.17 | 2.53 | n.s.* |
| Sex x Absolute Age Difference | 4 | 230.87 | 1.05 | n.s. |
| Group x Absolute Age Difference | 12 | 791.34 | 1.19 | n.s. |
| Sex x Group x Absolute Age Difference | 6 | 790.40 | 2.39 | .03 |
| Residual | 103 | 5684.66 | | |
| Total | 140 | 8364.64 | | |

$R^2$ = .320394, n.s.

*p < .10

Table 27 shows the results of canonical correlation analysis of relative birth order variables on CPI scales related to conformity. The first canonical correlation was significant. Sex of subject was the only predictor variable with a strong correlation (.89) with the first canonical predictor variable. The correlations for other variables were below .30. Thus, sex of subject appears to define the canonical predictor variable. On the first canonical criterion variable, all of the related CPI scales showed high positive correlations, except for Good Impression (.18). This analysis indicates that female subjects were higher on conformity.

Table 27

**Canonical Correlation: Predicting Conformity (CPI Responsibility, Socialization, Self-control, Good Impression, Communality) From Relative Birth Order Variables**

| Predictor Variables | Correlations with Canonical Variables | Criterion Variables | Correlations with Canonical Variables |
|---|---|---|---|
| Sex | .89 | Re | .60 |
| Group | .07 | So | .75 |
| Absolute Age Difference | .29 | Sc | .58 |
| | | Gi | .18 |
| | | Cm | .79 |

| Canonical Correlations | | Num df | Den df | F | p |
|---|---|---|---|---|---|
| 1 | .30 | 15 | 367.56 | 1.53 | .03 |

**Absolute Birth Order.** Tables 28 and 29 give the results of multiple regression analyses for the first subset of absolute birth order variables upon CPI Responsibility and Self-control, respectively. Sex, Number of Younger Sisters, and the interaction of these variables were significant predictors of Responsibility. Females obtained higher scores, as did subjects with a greater number of younger sisters. The interaction of Sex and Number of Younger Sisters predicted higher Responsibility, while this had little effect on male subjects.

Table 28

Multiple Regression: Predicting CPI Responsibility From Absolute Birth Order Variables (Sex, Sibling Structure) and Their Interactions

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 120.15 | 5.80 | .02 |
| No. Older Brothers | 1 | 16.97 | 0.82 | n.s. |
| No. Younger Brothers | 1 | 63.28 | 3.05 | n.s.* |
| No. Older Sisters | 1 | 8.80 | 0.42 | n.s. |
| No. Younger Sisters | 1 | 88.73 | 4.28 | .04 |
| Sex x No. Older Brothers | 1 | 49.50 | 2.39 | n.s. |
| Sex x No. Younger Brothers | 1 | 32.44 | 1.56 | n.s. |
| Sex x No. Older Sisters | 1 | 4.51 | 0.22 | n.s. |
| Sex x No. Younger Sisters | 1 | 96.74 | 4.67 | .03 |
| Residual | 131 | 2715.81 | | |
| Total | 140 | 3141.03 | | |

$R^2 = .135377$, $p < .02$

* $p < .10$

On the scale Self-control, Number of Younger Brothers and the interaction of Sex and Number of Younger Brothers were significant predictors. Higher Number of Younger Brothers predicted lower Self-control. The interaction

indicated that this effect was especially marked in males, and did not hold for female subjects.

Table 29

**Multiple Regressions Predicting CPI Self-control from Absolute Birth Order Variables (Sex, Sibling Structure) and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 53.97 | 0.95 | n.s. |
| No. Older Brothers | 1 | 1.40 | 0.02 | n.s. |
| No. Younger Brothers | 1 | 345.03 | 6.06 | .02 |
| No. Older Sisters | 1 | 67.30 | 1.18 | n.s. |
| No. Younger Sisters | 1 | 58.70 | 1.03 | n.s. |
| Sex x No. Older Brothers | 1 | 5.99 | 0.11 | n.s. |
| Sex x No. Younger Brothers | 1 | 257.87 | 4.53 | .04 |
| Sex x No. Older Sisters | 1 | 39.12 | 0.69 | n.s. |
| Sex x No. Younger Sisters | 1 | 32.54 | 0.57 | n.s. |
| Residual | 131 | 7463.93 | | |
| Total | 140 | 8364.64 | | |

$R^2$ = .107681, n.s.*

*p < .10

In the second subset of absolute birth order variables, significant effects were observed for the

scales Responsibility and Communality. Table 30 shows that of these variables, Sex was a significant predictor of Responsibility, with females scoring more highly on this scale. Table 31 indicates that the interaction of Ordinal Position and Family Size was a significant predictor of Communality. The interaction indicated that for earlier-born subjects, having smaller family size predicted higher Communality, while there was no difference for later-born subjects.

Table 30

**Multiple Regression: Predicting CPI Responsibility from Absolute Birth Order Variables (Sex, Ordinal Position, Family Size) and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 102.48 | 4.73 | .03 |
| Ordinal Position | 1 | 1.82 | 0.08 | n.s. |
| Family Size | 1 | 0.75 | 0.03 | n.s. |
| Sex x Ordinal Position | 1 | 11.99 | 0.55 | n.s. |
| Sex x Family Size | 1 | 3.55 | 0.16 | n.s. |
| Ordinal Position x Family Size | 1 | 13.63 | 0.63 | n.s. |
| Residual | 134 | 2905.01 | | |
| Total | 140 | 3141.04 | | |

R = .074824, n.s.

Table 31

**Multiple Regression: Predicting CPI Communality from Absolute Birth Order Variables (Sex, Ordinal Position, Family Size) and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 2.74 | 0.52 | n.s. |
| Ordinal Position | 1 | 2.41 | 0.46 | n.s. |
| Family Size | 1 | 4.88 | 0.92 | n.s. |
| Sex x Ordinal Position | 1 | 0.33 | 0.06 | n.s. |
| Sex x Family Size | 1 | 0.02 | 0.00 | n.s. |
| Ordinal Position x Family Size | 1 | 20.81 | 3.93 | .05 |
| Residual | 134 | 710.28 | | |
| Total | 140 | 771.56 | | |

$R^2$ = .079659, n.s.

Canonical correlation analysis of absolute birth order variables upon the CPI scales related to conformity yielded non-significant results.

## Sociability

**SRQ Factors.** Table 32 shows the results of multiple regression analysis of SRQ factors upon one of the two CPI scales related to sociability, Tolerance. On this scale,

the Hostility scale was a significant predictor. Higher Hostility Scores predicted higher Tolerance scores. On CPI Sociability, the SRQ factor scales showed no significant effects.

Table 32

**Multiple Regression: Predicting CPI Tolerance from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 6.38 | 0.26 | n.s. |
| Loyalty | 1 | 0.54 | 0.02 | n.s. |
| Hostility | 1 | 231.74 | 9.47 | .003 |
| Identification | 1 | 19.80 | 0.81 | n.s. |
| Caretaking | 1 | 5.68 | 0.23 | n.s. |
| Rivalry | 1 | 57.42 | 2.35 | n.s. |
| Residual | 121 | 2691.64 | | |
| Total | 127 | 3438.97 | | |

$R^2 = .130801$, $p < .005$

Table 33 illustrates the results of canonical correlation analysis of SRQ factors on sociability, as defined by CPI Sociability and Tolerance. The first canonical correlation in this analysis was significant. Examination of the predictor variables reveals that

Hostility and Rivalry showed the highest correlations on the first canonical predictor variable, .84 and .68, respectively. The remaining SRQ factors showed unimpressive correlations, below .30. Thus, this canonical variable was defined by high Hostility and Rivalry.

**Table 33**

**Canonical Correlation: Predicting Sociability (CPI Sociability and Tolerance) from SRQ Factor Scales**

| Predictor Variables | Correlations with Canonical Variables | Criterion Variables | Correlations with Canonical Variables |
|---|---|---|---|
| Companionship | -.26 | Sy | -.33 |
| Loyalty | -.18 | To | .86 |
| Hostility | .84 | | |
| Identification | -.15 | | |
| Caretaking | .27 | | |
| Rivalry | .68 | | |

| Canonical Correlations | | Num df | Den df | F | p |
|---|---|---|---|---|---|
| 1 | .41 | 12 | 240 | 2.58 | .0009 |

Among the criterion variables, Sociability showed a negative correlation with its first canonical variable, -.33, and Tolerance showed a positive correlation of .86.

Thus, this canonical variable was defined more strongly by an open, nonjudgemental attitude, with Sociability acting as a suppressor variable.

The first canonical correlation in this analysis was .33. This indicates that higher Hostility and Rivalry predicted more tolerant social attitudes, but perhaps lower sociability itself.

**Relative Birth Order.** As was the case with SRQ factors, relative birth order variables were not significant predictors of CPI Sociability. Table 34 shows the results of multiple regression analysis of these variables upon CPI Tolerance. Sex was a significant predictor, with females obtaining higher scores on this scale.

Table 34

**Multiple Regression: Predicting CPI Tolerance From Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 217.82 | 8.65 | .004 |
| Group | 3 | 30.27 | 0.40 | n.s. |
| Absolute Age Difference | 8 | 220.00 | 1.10 | n.s. |
| Sex x Group | 3 | 96.41 | 1.28 | n.s. |
| Sex x Absolute Age Difference | 4 | 180.37 | 1.79 | n.s. |
| Group x Absolute Age Difference | 12 | 500.47 | 1.66 | n.s.* |
| Sex x Group x Absolute Difference | 6 | 154.15 | 1.02 | n.s. |
| Residual | 103 | 2592.57 | | |
| Total | 140 | 3827.89 | | |

$R^2$ = .322715, n.s.

*$p < .10$

The canonical correlation analysis of these variables upon the CPI scales related to sociability revealed no significant results.

**Absolute Birth Order.** The multiple regression analyses of both subsets of absolute birth order variables

upon CPI scales related to sociability failed to yield significant results. Among the first class there was a near significant trend for Sex to predict Tolerance ($p = .09$), with females tending to obtain higher scores.

Despite the lack of significant findings in multiple regression analysis, the canonical correlation analysis of absolute birth order variables upon these CPI scales did give significant results, as shown in Table 35. The first canonical correlation was significant. The canonical predictor variable showed a high positive correlation with Sex, and high negative correlations with Ordinal Position, Number of Older and Younger Brothers and Family Size. Thus, this variable was associated with female sex, and with being earlier-born. The presence of older and younger brothers and large family size are related to lower sociability.

The canonical criterion variable showed positive correlations with both Sociability and Tolerance, especially with the latter, .40 and .90, respectively.

The significant correlation of .33 between the canonical variables indicates that being an earlier-born female with few brothers and a small family predicted greater sociability, especially in the sense of possessing nonjudgemental social attitudes.

Table 35

**Canonical Correlation: Predicting Sociability (CPI Sociability and Tolerance) from Absolute Birth Order Variables**

| Predictor Variables | Correlations with Canonical Variables | Criterion Variables | Correlations with Canonical Variables |
|---|---|---|---|
| Sex | .65 | Sy | .40 |
| Ordinal Position | -.42 | To | .99 |
| No. Older Brothers | -.46 | | |
| No. Younger Brothers | -.46 | | |
| No. Older Sisters | -.23 | | |
| No. Younger Sisters | -.17 | | |
| Family Size | -.63 | | |

| Canonical Correlations | | Num df | Den df | F | p |
|---|---|---|---|---|---|
| 1 | .33 | 10 | 268 | 2.24 | .007 |

**Sex-role Orientation**

**SRQ Factors.** Table 36 shows the results of multiple regression analysis of SRQ factors upon CPI Femininity. The factor Loyalty was a significant predictor of this scale, with subjects higher on Loyalty obtaining lower scores on Femininity.

Table 36

**Multiple Regression: Predicting CPI Femininity from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 76.65 | 3.23 | n.s.* |
| Loyalty | 1 | 118.16 | 4.98 | .03 |
| Hostility | 1 | 40.28 | 1.70 | n.s. |
| Identification | 1 | 37.26 | 1.57 | n.s. |
| Caretaking | 1 | 58.79 | 2.48 | n.s. |
| Rivalry | 1 | 0.02 | 0.00 | n.s. |
| Residual | 121 | 2872.06 | | |
| Total | 127 | 3243.93 | | |

$R^2 = .114635$, $p < .02$

*$p < .10$

**Relative Birth Order.** In the analysis of relative birth order variables on CPI Femininity, Sex was a significant predictor, as shown in Table 37. The interaction of Sex and Group was also significant. Among females, those with sisters, older or younger, as closest-in-age siblings were higher than other females. Among males, having a younger sister or an older brother as closest-in-age sibling predicted higher Femininity.

Table 37

**Multiple Regression: Predicting CPI Femininity from Relative Birth Order Variables and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 768.18 | 59.22 | .0001 |
| Group | 3 | 25.00 | 0.64 | n.s. |
| Absolute Age Difference | 8 | 145.75 | 1.40 | n.s. |
| Sex x Group | 3 | 133.21 | 3.42 | .02 |
| Sex x Absolute Age Difference | 4 | 38.97 | 0.75 | n.s. |
| Group x Absolute Age Difference | 12 | 71.55 | 0.46 | n.s. |
| Sex x Group x Absolute Age Difference | 6 | 124.11 | 1.59 | n.s. |
| Residual | 103 | 1336.02 | | |
| Total | 140 | 3693.70 | | |

$R^2 = .638297$, $p < .0001$

**Absolute Birth Order.** Table 38 gives the results of multiple regression analysis of the first subset of absolute birth order variables upon CPI Femininity. Sex was again a significant predictor, with females obtaining higher scores on this scale. Number of Older Sisters was also a significant predictor on this scale, in a negative direction. Number of Younger Sisters significantly predicted higher scores on this scale. The interaction of

Sex and Number of Older Sisters was also significant. In females, higher number of Older Sisters predicted higher Femininity, while the reverse was true of males.

Table 38

**Multiple Regression: Predicting CPI Femininity from Absolute Birth Order Variables (Sex, Sibling Structure) and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 340.18 | 25.44 | .0001 |
| No. Older Brothers | 1 | 3.81 | 0.28 | n.s. |
| No. Younger Brothers | 1 | 41.22 | 3.08 | n.s.* |
| No. Older Sisters | 1 | 93.36 | 6.98 | .009 |
| No. Younger Sisters | 1 | 58.71 | 4.39 | .04 |
| Sex x No. Older Brothers | 1 | 1.96 | 0.15 | n.s. |
| Sex x No. Younger Brothers | 1 | 12.46 | 0.93 | n.s. |
| Sex x No. Older Sisters | 1 | 98.12 | 7.34 | .008 |
| Sex x No. Younger Sisters | 1 | 38.00 | 2.84 | n.s.* |
| Residual | 131 | 1751.54 | | |
| Total | 140 | 3693.70 | | |

$R^2 = .525803$, $p < .0001$

*$p < .10$

Table 39

**Multiple Regression: Predicting CPI Femininity from Absolute Birth Order Variables (Sex, Ordinal Position, Family Size) and Their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 135.98 | 9.33 | .003 |
| Ordinal Position | 1 | 23.75 | 1.63 | n.s. |
| Family Size | 1 | 0.36 | 0.02 | n.s. |
| Sex x Ordinal Position | 1 | 44.45 | 3.05 | n.s.* |
| Sex x Family Size | 1 | 0.06 | 0.00 | n.s. |
| Ordinal Position x Family Size | 1 | 0.25 | 0.02 | n.s. |
| Residual | 134 | 1953.81 | | |
| Total | 140 | 3693.70 | | |

$R^2 = .471043$, $p < .0001$

*$p < .10$

Among the second subset of absolute birth order variables, Sex again had a significant effect, as shown in Table 39.

**Interactions Between SRQ Factors and Birth Order Variables.** For the trait of sex-role orientation, interactions between SRQ factors and sibling structure variables were examined. It had been hypothesized in

Chapter I that these two sets of variables may interact in predicting sex-role orientation.

Two multiple regression analyses were carried out. In the first the SRQ factors, Sex, and Group, and the two-way interactions between each SRQ factor with Sex and Group, and between Sex and Group were entered into the regression equation. This analysis yielded no significant results. In the second analysis, two-way interactions between each of the SRQ factors and the total Number of Brothers (NMS) and total Number of Sisters (NFS) in the family was entered into the regression equation. The results of this analysis are shown in Table 40. The interactions between Number of Brothers and Rivalry was a significant predictor of Femininity. Among the subjects with fewer brothers, higher Rivalry scores predicted higher Femininity. The significant interaction of Number of Sisters and Hostility indicated that for subjects with more sisters, higher Hostility predicted higher scores on Femininity. The significant interaction of Number of Sisters and Rivalry indicated that among subjects with fewer sisters, higher Rivalry scores predicted higher Femininity.

Table 40

**Multiple Regression: Predicting CPI Femininity From Interactions Between SRQ Factor Scales and Sibling Structure Variables (Number of Brother and Sisters)**

| Source | df | SS | F | p |
|---|---|---|---|---|
| NMS x Companionship | 1 | 19.17 | 0.83 | n.s. |
| NMS x Loyalty | 1 | 69.53 | 3.03 | n.s.* |
| NMS x Hostility | 1 | 26.34 | 1.15 | n.s. |
| NMS x Identification | 1 | 6.66 | 0.29 | n.s. |
| NMS x Caretaking | 1 | 6.56 | 0.29 | n.s. |
| NMS x Rivalry | 1 | 156.00 | 6.79 | .01 |
| NFS x Companionship | 1 | 4.54 | 0.20 | n.s. |
| NFS x Loyalty | 1 | 22.47 | 0.98 | n.s. |
| NFS x Hostility | 1 | 130.39 | 5.67 | .02 |
| NFS x Identification | 1 | 2.83 | 0.12 | n.s. |
| NFS x Caretaking | 1 | 0.62 | 0.03 | n.s. |
| NFS x Rivalry | 1 | 108.17 | 4.71 | .03 |
| Residual | 115 | 2642.77 | | |
| Total | 127 | 3243.93 | | |

$R^2 = .185319$, $p < .02$

Note: NMS = Number of Brothers; NFS = Number of Sisters.
*$p < .10$

## Additional Findings

In this section other significant findings obtained in the data analysis will be presented. The results of

multiple regression analyses of SRQ factors and sibling structure variables upon CPI scales unrelated to the personality features discussed above will be illustrated. In addition to these analyses, analysis of the effects of the family demographic variables, Socioeconomic Status (SES), Parental Loss and Sibling Loss, upon the CPI scales were performed. These results will also be presented below.

## Findings Related to Other CPI Scales

**SRQ Factors.** The results of multiple regression analyses of SRQ factors upon the CPI scales Self-acceptance, Well-being, and Psychological-mindedness can be found in Appendix H, Tables 41 through 43. These results indicated that Rivalry and Hostility were predictors on these scales. High Rivalry predicted lower Self-acceptance. Higher Hostility scores predicted higher Well-being and Psychological-mindedness.

**Relative Birth Order.** These variables showed no significant results in relation to other CPI scales.

**Absolute Birth Order.** Among the first subset of absolute birth order variables, there were no significant results in relation to other CPI scales.

Among the second subset of absolute birth order variables, there were significant results for the CPI scale, Well-being, (see Table 44, Appendix H). Both

Ordinal Position and the interaction of Sex and Ordinal Position were significant predictors of this CPI scale. Later-born subjects obtained higher scores on Well-being than earlier-borns. The interaction was such that this effect of Ordinal Position was true for males, but had little effect upon females.

## Family Demographic Variables

**Need for Achievement.** The family demographic variables were able to significantly predict three of the four CPI scales related to need for achievement, Dominance, Capacity for Status, and Achievement via Independence. Results of these analysis were shown in Tables 45 through 47 in Appendix I. Both Parental Loss and Sibling Loss were significant predictors of Dominance (Table 45). The loss of a parent predicted higher Dominance, while loss of a sibling predicted lower scores on this scale. Table 46 shows that Sibling Loss also predicted lower Capacity for Status. On Achievement via Independence (Table 47), Parental Loss predicted significantly lower scores on this scale. Sibling Loss approached significance ($p = .055$) in predicting lower scores on the scale.

Family characteristics were significant predictors in canonical correlation analysis of need for achievement, as shown in Table 48 in Appendix I. The first canonical correlation was significant. The canonical predictor

variable showed high correlations for all three of the family demographic variables, with SES and parental loss contributing in a positive direction, and Sibling Loss in a negative direction. Inspection of the correlations of the criterion variables with their first canonical variable indicates that Dominance and Capacity for Status showed the highest correlations, suggesting that interpersonal achievement orientation contributed most highly to this variable, with Achievement via Conformance and via Independence also contributing in a positive direction. Higher SES, the loss of a parent, and the lack of sibling loss thus predicted higher need for achievement.

**Need for Affiliation.** Table 49 in Appendix I shows the results of multiple regression analysis of family characteristics upon CPI Social Presence, the scale related to need for affiliation. Sibling Loss was again a significant predictor of this scale, predicting lower scores on Social Presence, and thus, higher need for affiliation.

**Conformity.** These variables were significant predictors of only one of the CPI scales related to conformity, Responsibility. Parental Loss predicted significantly higher scores on CPI Responsibility, as shown in Table 50 (see Appendix I).

Canonical correlation analysis of these variables with the scales related to conformity yielded non-significant results.

**Sociability**. The family demographic characteristics were significant predictors of both CPI Sociability and Tolerance, the scales related to the trait of sociability. Parental Loss was a positive predictor of Sociability, as shown in Table 51 (see Appendix I). The results for CPI Tolerance are shown in Table 52 in Appendix I. Sibling Loss predicted significantly lower Tolerance scores.

Table 53 in Appendix I shows the results of the canonical correlation analysis of sociability in relation to family characteristics. The first canonical correlation was significant. SES and parental loss contributed positively on the first canonical predictor variable, while Sibling Loss was a negatively loaded variable. Both CPI Sociability and Tolerance showed high correlations on the canonical criterion variable. Thus higher SES, parental loss, and the absence of sibling loss predicted higher sociability.

**Sex-Role Orientation**. The family demographic variables showed no significant relation to CPI Femininity.

**Other CPI Scales**. Table 54 through 57 (see Appendix I) present the significant results of multiple regression analysis of family characteristics upon CPI scales not analyzed above. These variables showed significant

relations to a number of these scales. Parental Loss predicted significantly higher scores on CPI Self-acceptance (Table 54) and Psychological-mindedness (Table 55). Sibling Loss predicted significantly lower scores on CPI Well-being (Table 56), Intellectual Efficiency (Table 57), and Psychological-mindedness (Table 55).

## Summary of Findings

The significant findings presented above can be summarized as follows:

1. The factor scales of the SRQ were successfully cross-validated. Factor analytic results of the SRQ with this sample of subjects were very close to the results obtained with the original sample. The distribution of questionnaire items on the different scales closely resembled the original distribution. In this sample of SRQ data there were some differences in the relative strengths of the different factors in comparison to the original sample; however, the content of each scale was quite stable.

2. With regard to the relationships between SRQ factor scales and the family and sibling structure variables, the following results can be stated:

a. The Identification factor was the most strongly related to family and sibling structure variables. It was

significantly correlated with subject's sex, age difference between subject and closest-in-age sibling, subject's ordinal position, number of older brothers, number of older sisters, and total family size. Earlier-born males who were older than their closest-in-age sibling with few older brothers and sisters and smaller family size were higher in Identification with the closest-in-age sibling. There was a trend for the experience of sibling loss to decrease Identification scores.

b. The Caretaking factor scale showed the next strongest relation to these variables. It correlated significantly with age difference between subject and closest-in-age sibling, ordinal position, numbers of younger brothers, older sisters, and younger sisters. Later-born subjects who were younger than their closest-in-age sibling and with fewer younger brothers and sisters and larger numbers of older sisters scored more highly on Caretaking in relation to the closest-in-age sibling. There was also a trend for larger numbers of older brothers to increase Caretaking scores.

c. The Loyalty factor showed little relation to these variables. There was a significant correlation with Sex and a near significant correlation with Sibling Sex. Males scored more highly on this scale than females, with a trend towards higher scores if the closest-in-age

sibling was female. There was a trend for larger number of older brothers to decrease Loyalty scores.

d. Rivalry also showed little relation to the family and sibling structure variables. It correlated significantly with Sibling Sex, such that subjects with male closest-in-age siblings were higher in Rivalry. There were trends for the experience of sibling loss and for a high number of younger sisters to decrease Rivalry scores.

e. Companionship was significantly correlated only with Sibling Sex, such that subjects with female closest-in-age siblings were higher on this scale. There was a trend for male subjects to score more highly on this scale.

f. Hostility showed no significant or near significant correlations with any of these variables. Hostility towards the closest-in-age sibling was not related to any family or sibling structure variables at all.

3. In relation to the five personality features investigated, the following results can be stated:

a. (1) SRQ factors were significant predictors of need for achievement. The Hostility factor was the most powerful predictor of this trait, with higher Hostility scores predicting higher need for achievement, both in multiple regression and canonical correlation analyses. The Loyalty scale was also a significant predictor of this

trait, with higher Loyalty predicting lower need for achievement, both in multiple regression and canonical correlation analyses. The latter type of analysis indicated that the Caretaking scale also played a role in predicting this trait: when combined with low Loyalty and high Hostility, it was negatively related to need for achievement, but when combined with high Hostility and Rivalry it related positively to this trait. Rivalry was also a significant predictor in canonical correlation analysis, high Rivalry predicting high need for achievement.

(2) Relative birth order variables were significant predictors of need for achievement in multiple regression analyses only. Subject's sex was the most powerful of these variables, and the absolute age difference between subject and the closest-in-age sibling was also a significant predictor on one scale related to need for achievement. Females and subjects with larger age differences from the closest-in-age sibling were higher on need for achievement.

(3) Absolute birth order variables did not reach significance as predictors of this trait.

b. (1) SRQ factors were not significant predictors of need for affiliation.

(2) Relative birth order variables were not significant predictors of this trait.

(3) Absolute birth order variables were able to predict need for affiliation. Number of Younger Sisters, and the interactions between Sex and Number of Younger Brothers, and Sex and Number of Younger Sisters were significant predictors of this trait. A larger number of younger sisters was associated with higher need for affiliation. In females, higher number of younger brothers also predicted higher need for affiliation. For both males and females, higher number of younger sisters predicted higher need for affiliation.

c. (1) SRQ factors were significant predictors of conformity. The Hostility scale was again an important predictor in both multiple regression and canonical correlation analyses. Higher Hostility scores predicted higher conformity. Rivalry was also an important predictor of this trait, with higher Rivalry scores associated with greater conformity. In addition, the Identification scale was a significant predictor. In regression analysis, higher Identification scale scores predicted lower scores on one CPI scale (Socialization) related to conformity. In canonical correlation analysis, when combined with the other SRQ factors, Identification also predicted higher conformity. The Companionship scale was also a significant predictor of CPI Socialization in a positive direction.

(2) Among relative birth order variables, Sex was the most powerful predictor of conformity. In both multiple regression and canonical correlation analyses, females were higher in conformity. The interaction of Sex, Group, and Absolute Age Difference was also a significant predictor of one CPI scale related to conformity, Self-control. Males with older or younger sisters as closest-in-age siblings and larger age differences with these siblings were higher on this scale than other males, while for females, no clear pattern emerged.

(3) Absolute birth order variables were also significant predictors of conformity. The variables Sex, Number of Younger Brothers and Sisters, and the interactions between Sex and Number of Younger Brothers, between Sex and Number of Younger Sisters, and between Ordinal Position and Family Size were also significantly related to conformity. Females were higher on this trait than males. Larger numbers of younger sisters predicted higher conformity, while the reverse was true for younger brothers. The effect of younger sisters was more pronounced in females than in males, while the effect of younger brothers was stronger in males than in females. The interaction between Ordinal Position and Family Size indicated that for earlier-borr subjects, having a smaller

family predicted greater conformity while for later-borns family size made little difference.

d. (1) SRQ factors were significant predictors of one of the two CPI scales related to sociability, the CPI Tolerance scale. In both multiple regression and canonical correlation analyses, higher Hostility scores were related to higher scores on Tolerance. However, the canonical correlation analysis indicated that Hostility was a significant positive predictor of tolerant social attitudes, but in combination with high Rivalry may predict lower sociability itself.

(2) Among relative birth order variables, only Sex reached significance as a predictor of the scales related to sociability, with females obtaining higher scores on CPI Tolerance than males. Thus, relative birth order is not clearly related to sociability, per se.

(3) Among absolute birth order variables, canonical correlation analysis indicated that the combination of Sex, Ordinal Position, Number of Older and Younger Brothers, and Family Size predicted sociability. Females were higher than males on this trait, while lower ordinal position, e.g., earlier-born, fewer older and younger brothers, and smaller family size also predicted greater sociability.

e. (1) SRQ factors showed some ability to predict sex-role orientation. The Loyalty factor scale was a

significant predictor, with higher Loyalty scores related to lower scores on CPI Femininity.

(2) Among relative birth order variables, Sex and the interaction of Sex and Group were significant predictors of this trait. Females, not surprisingly, were higher on CPI Femininity than males. Among females, those with sisters as closest-in-age sibling were higher on Femininity. Among males, those with younger sisters or older brothers as closest-in-age sibling were higher on Femininity, i.e., were more prone to cross sex-role orientation.

(3) Several absolute birth order variables were significant predictors of sex-role orientation. Females were again higher on Femininity. Number of Older Sisters had a negative effect upon Femininity, while Number of Younger Sisters predicted this trait in a positive direction. The significant interaction between Sex and Number of Older Sisters indicated that for females a large number of older sisters predicted higher Femininity, while the reverse was true for males.

(4) In the analyses involving interactions between SRQ factors and sibling structure variables, three interactions were significant in predicting sex-role orientation. Among subjects with fewer male and female siblings, higher Rivalry scores predicted higher

Femininity. Among subjects with higher number of female siblings, higher Hostility predicted higher Femininity.

4. With regard to the additional significant findings, the following statements can be made:

a. (1) SRQ factors were significant predictors of other CPI scales. Higher Rivalry predicted lower Self-acceptance scores. Higher Hostility predicted scores on Well-being and Psychological-mindedness.

(2) Relative birth order variables predicted no other CPI scales.

(3) Absolute birth order variables were significant predictors of the CPI scale, Well-being. Having a higher, i.e., later-born ordinal position predicted higher Well-being, and this effect interacted with the variable Sex such that this effect held especially strongly for male subjects.

b. (1) With regard to family demographic characteristics, in both multiple regression and canonical correlation analyses, these variables were significant predictors of need for achievement. Higher SES and the experience of parental loss predicted higher need for achievement, while the experience of sibling loss predicted lower need for achievement.

(2) The experience of sibling loss predicted higher need for affiliation.

(3) Parental Loss contributed significantly in predicting one of the CPI scales related to conformity, Responsibility. The experience of parental loss predicted higher scores on this scale.

(4) In both multiple regression and canonical correlation analyses, family characteristics were significantly related to sociability. Higher SES and the experience of parental loss predicted greater sociability, while the experience of sibling loss predicted lower sociability.

(5) The family demographic variables showed no ability to predict sex-role orientation.

(6) Parental Loss predicted higher scores on CPI Self-acceptance and Psychological-mindedness.

(7) Sibling Loss predicted lower scores on CPI Well-being, Intellectual Efficiency, and Psychological-mindedness.

# CHAPTER IV

# DISCUSSION

This investigation was composed of two parts: (1) the construction of a questionnaire designed to assess retrospectively the emotional components of childhood sibling relationships, and (2) the examination of the capacity of the questionnaire to predict certain personality features in college students, as compared with the predictive ability of sibling structure variables. It was hypothesized that certain factors would emerge in the questionnaire reflecting the emotional components of sibling relationships. A number of hypotheses were formulated regarding the ways in which these factors would predict personality features. It was also hypothesized that the questionnaire factors would better predict traits than would sibling structure variables alone. In this chapter each of these hypotheses will be discussed in turn. Further important findings in addition to the results related to the specific hypotheses will also be discussed. A final section will offer suggestions and implications for further research in the area of sibling relationships.

## Emotional Components of Sibling Relationships

A review of the literature in Chapter I on sibling relationships led to a proposed model of sibling relationships composed of six separate emotional dimensions. These were Rivalry, Hostility, Companionship, Dependency, Caretaking, and Identification. it was suggested that all sibling relationships contain all of these elements to some degree, although the extent to which each is consciously experienced or overtly expressed may vary considerably. The Sibling Relationship Questionnaire (SRQ) was constructed with these six dimensions in mind.

Factor analyses of the SRQ in Study 1 and Study 2, with separate samples of subjects, revealed a factor structure quite close to the hypothesized model. The six factors that emerged and were selected for the questionnaire were finally labeled Companionship, Loyalty, Hostility, Identification, Caretaking, and Rivalry, in the order of each factor's strength in the Study 1 factor analysis. In Study 2 the internal composition of each factor remained quite stable, although the order of strength of the factors changed. In this latter analysis the factors in order of strength were Companionship, Identification, Caretaking, Hostility, Rivalry, and Loyalty. The results of the factor analysis in Study 2 provided a cross-validation for the results of Study 1.

The findings regarding the SRQ factor structure obtained in Study 1 were supported in the second analysis. The SRQ thus appears to contain six factors which account for more than 40% of the variance of the questionnaire (41% in Study 1, and 42% in Study 2). Second-order factor analysis indicated that the six factors fall into three groups. One group is composed of the Companionship, Loyalty, and Identification factors, one of the Hostility and Rivalry factors, and one of the Caretaking factor. Each of the six factors will be discussed in some detail below.

In the final version of the SRQ, the Companionship factor is composed of 25 items. This proved to be the strongest of the factors in accounting for the questionnaire variance. The content of the items with the highest factor loadings revolve around enjoying the sibling as a playmate, denial of emotional distance from the sibling, and feeling close to the sibling. This factor seems to reflect the tone of some of Dunn and Kendrick's (1982b) descriptions of affectionate, playful interactions between siblings that begin to occur at very early ages. The strength of this factor in both the factor analyses of Study 1 and Study 2 indicates that companionship is a very important component of childhood sibling relationships. Siblings are important to each other as playmates and confidantes in a way that parents cannot be. Cicirelli's (1980) study on the feelings of

college women towards their siblings suggested that these feelings continue into later life. He found that siblings were rated as very important in the areas of emotional support and seeking help and advice.

The Loyalty scale is composed of 17 items. Many of the items on this scale were items that were developed with the dimension of "Dependency" in mind. However, the content of the Loyalty scale reflects more of a flavor of mutual, reciprocal dependency between the siblings. Consistent with this, some of the items which had been developed with the Caretaking component in mind also show high loadings on this factor. A factor reflecting the type of dependency originally hypothesized, one composed purely of items dealing with help-seeking and looking to the sibling as a source of nurturance, did not emerge. The factor that most closely resembles this component is the Identification factor which will be discussed below. The content of items highest on the Loyalty factor involve feelings of discomfort at conflict with the sibling, mutual comfort and concern, and empathy with the sibling. The Loyalty factor is reminiscent of the type of reciprocal loyalty described by Bank and Kahn (1982). Such sibling relationships are characterized by mutuality and interdependence. These authors speculated that intense feelings of this nature develop only when there is a

parental vacuum of sorts, and the siblings learn to rely upon each other in place of parents.

The Hostility factor includes 17 items. The content of these items is quite straightforward, expressing memories of frequent arguments, both verbal and physical, and feelings of anger towards the sibling. This emotional component is undeniably an important part of sibling relationships. Bank and Kahn (1982) noted that hostility between siblings can range from a situation in which conflict merely enliven and stimulate the relationship to one in which intense anger can permanently alienate the sibling. As will be discussed below, this factor proved to be a particularly powerful one in predicting personality features.

The Identification factor contains 16 items. Many of the items are from the originally hypothesized Identification scale, and a significant number are from the hypothesized Dependency scale. The content of this factor thus reflects a combination of identification with and of dependency feelings towards the sibling. The content of the strongest items of the factor involves a merging, idealizing type of hero-worship of the sibling, and wanting to imitate the sibling who was viewed as near perfect. Other important elements include the wish for a special, exclusive relationship with the sibling, and a rather infantile, regressive dependence upon the sibling.

Bank and Kahn (1982) discussed the concept of close identification patterns in sibling relationships, where one child's identity may become merged with that of the sibling. This factor seems to reflect this type of process. The twinning phenomena discussed by a number of psychoanalytic writers (Joseph, 1961; Joseph & Tabor, 1961; Glenn, 1966; Shopper, 1974) that can occur in twins or in siblings treated like twins is also suggested by this factor.

The Caretaking factor is composed of 12 items. This factor differs somewhat from the hypothesized Caretaking scale. The hypothesized scale contained items reflecting nurturant feelings towards the sibling and caretaking activities. In the factor analysis, most of the items reflecting nurturance and comfort fell into the Loyalty factor. The final Caretaking factor thus deals more with the issues of having responsibility for and control over the sibling. The items reflect feelings of being a parental sibling.

The Rivalry factor contains 14 items. In this factor the content of items is quite straightforward and homogeneous. The items involve feelings of competition and envy of the sibling, especially in relation to the parents. Most of the items are from the hypothesized Rivalry scale. This is thus one of the most easily interpretable factors. It is interesting to note that

despite the prominence given to rivalry in much of the literature on sibling relationships, the Rivalry factor is one of the weakest factors in accounting for the total variance of the SRQ in both factor analyses. It was the sixth factor in Study 1, and the fifth in the Study 2 analysis. Rivalry does not appear to explain the variability in sibling relationships, perhaps because it is so universally an aspect of these relationships.

**Relationships Between SRQ Factors and Family Structure**

In Study 2 some interesting relationships emerged between the SRQ factors and family and sibling structure variables. One surprising finding is that earlier-born subjects and subjects older than their closest-in-age siblings scored higher on Identification in relation to that sibling. At the same time, later-born subjects and subjects younger than their closest-in-age siblings scored higher on Caretaking in relation to that sibling. These findings seem to be a reversal of what one would expect. Older siblings are usually thought of as more responsible, and younger siblings as more idealizing of and dependent upon older siblings. Possible reasons for this finding will be discussed below in relation to the prediction of need for affiliation from sibling structure variables.

Another important finding is that males tended to recall more positive relationships with their

closest-in-age siblings than did females. Males obtained higher scores on Loyalty and Companionship than females. This seemed to be especially true if the sibling was female. Thus, male-female sibling pairs may be among the most harmonious for males. This finding tends to contradict the findings of Abramovitch and her colleagues (1982). These researchers found that over time the number of antagonistic interactions increased among mixed-sex sibling pais. It may be that this phase is short-lived or is not well recalled by the male members of such pairs.

Subjects with male closest-in-age siblings, on the other hand, tended to experience more rivalry with these siblings. This is further supported by the near significant negative correlation between number of younger sisters and Rivalry scores. Male siblings may elicit more rivalry in both male and female children, while female siblings may inhibit the experience and/or expression of such feelings, at least for male children. This would certainly fit with cultural sex-role stereotypes of males as more competitive than females.

The near significant negative correlations between sibling loss and both Identification and Rivalry scores are interesting. It may be that the experience of sibling loss leads to a decreased investment in remaining siblings as identificatory figures. This could serve to protect a child from the pain of potential loss of another such

relationship. At the same time this experience may lead to an inhibition of rivalry out of unconscious fear and guilt that one's wishes to outdo and rid oneself of a competitor could actually succeed. The reactions could represent the type of unfinished or abnormal mourning process discussed by other authors (Pollack, 1972; Bank & Kahn, 1982). The impact of sibling loss will be discussed further below in relation to its association with personality characteristics.

Overall it is clear that of the SRQ factors, Identification and Caretaking show the strongest relations to family and sibling structure variables. Except for the variables of sex and closest-in-age sibling's sex, the remaining factors showed little or no relation to these variables. These factors thus appear to be relatively independent of most traditional birth order consideration, e.g., ordinal position. It must also be kept in mind that some of these relationships may be due to chance. Further replication of these findings is necessary before definitive statements may be made with regard to these relationships.

**Effects of SRQ Factors, Sibling Structure Variables, and Family Characteristics Upon Personality Features**

In this section the hypotheses made in Chapter I regarding the prediction of personality features from the

emotional and birth order components in sibling relationships will be discussed. The ability of each SRQ factor to predict personality characteristics will be discussed in turn, in the order of the hypotheses made in Chapter I. This will be followed by a similar review and discussion of the abilities of relative birth order, absolute birth order, and family demographic characteristics in this regard.

## Rivalry

It was predicted that the degree of rivalry would predict achievement orientation. This hypothesis was supported. Although Rivalry was not a significant predictor in multiple regression on the individual CPI scales related to achievement orientation, it showed a high positive correlation (.50) with the first canonical variable in canonical correlation analysis. Subjects who obtained high scores on the SRQ Rivalry scale also were higher in need for achievement. Subjects who experienced relatively greater amounts of rivalry were thus more likely to be motivated towards achievement. It should also be noted that Rivalry had this effect when combined with high Hostility and high Caretaking scores. This suggests that rivalry in sibling relationships may indeed have a constructive effect upon personality development.

Rivalry was also a predictor of other personality variables. In both multiple regression and canonical correlation analyses, higher Rivalry scores predicted higher scores on CPI scales related to conformity. This suggests that rivalry in sibling relationships may contribute to an individual's capacity for self-control and attentiveness to social expectations.

Rivalry interacted with both number of male and female siblings to predict sex-role orientation. Subjects who were higher in Rivalry and lower in number of male siblings had higher Femininity scores. Those who were higher in Rivalry and lower in number of female siblings also obtained higher Femininity scores. This suggests that the experience of rivalry with few siblings of either sex may lead to a more feminine sex-role orientation.

In addition to the above, higher Rivalry scores predicted lower Self-acceptance. Subjects with higher rivalry were more self-critical than other subjects.

Taken together these results suggest that rivalry may have an impact upon personality in college students. In a sense, rivalry appears to contribute to socialization. Subjects who experienced greater rivalry are more aware of other's expectations and interested in meeting these expectations. They may tend to be somewhat more self-critical and somewhat socially retiring. It may be that rivalry with the closest-in-age sibling has a

lingering effect upon the individual. The childhood competition with the sibling for parental attention and favor may be translated in later life into continuing competition with peers, a desire to meet society's expectations, and a more critical attitude towards one's efforts.

## Hostility

It was hypothesized that the degree of hostility would predict need for affiliation and sociability. The hypothesis was not supported with regard to need for affiliation. The Hostility factor scale showed no relation to need for affiliation. The hypothesis was supported in relation to sociability. The Hostility scale predicted one CPI scale related to sociability, Tolerance, in a positive direction, but was negatively related to the other, CPI Sociability. Thus, while Hostility predicted tolerant, non-judgemental social attitudes, it was also associated with lesser outgoingness, or sociability per se.

Hostility was a significant predictor of many other personality variables. It was a positive predictor of achievement orientation and conformity. Higher Hostility scores in combination with higher number of female siblings predicted higher Femininity.

Among other CPI scales, higher Hostility predicted greater CPI Well-being and Psychological-mindedness.

Of all the SRQ factors, Hostility appeared to have the greatest predictive power for the personality characteristics examined in this research. Hostility between siblings thus appears to have an important relationship to personality. Like rivalry, it is associated with greater desire for achievement, greater awareness of social expectations, and willingness to meet them. Hostility seems to be related to a certain lack of social gregariousness, but also to tolerant social attitudes and a desire to understand people. It is further related to relative freedom from anxiety and self-doubt.

These findings may seem somewhat surprising. One might expect that individuals who experienced greater hostility in their sibling relationships might tend to be angry, bitter persons, but this is not the picture presented by these findings. These subjects were not misanthropes. One possible explanation for this apparently puzzling result may lie in some of Bank and Kahn's (1982) discussion of sibling aggression. These authors pointed out that sibling aggression serves some positive purposes. Siblings may learn through fighting with each other how to express aggression in controlled ways. The authors noted:

> We found that children feel that a moderate amount of aggressive interaction <u>not</u> interfered with by the parents, is a necessary, even

> positive part of their sibling relationship--as if such aggression is an inalienable possession that marks them as a distinct subsystem, different from the parents whom they have been taught to love and honor (Bank & Kahn, 1982, pp. 199-200).

An additional or alternative explanation involves the possibility that subjects who reported greater hostility toward their closest-in-age sibling in childhood may be more aware and accepting of their hostile feelings than other subjects. Assuming that hostility is a component in all sibling relationships, whether or not it was consciously experienced or overtly expressed, it may be that subjects with higher Hostility scores were individuals with greater awareness and insight into themselves and their relationships. This insight and self-acceptance may lead to greater acceptance of hostile feelings and increased ability to utilize aggression in constructive ways. On the other hand, subjects who presumably deny and suppress their hostile feelings towards siblings may also deny and suppress their healthy goal-directed aggressive drives. This inhibition of rivalry and aggression was noted as a common problem among the authors who discussed twinning reactions (Joseph, 1961; Joseph & Tabor, 1961; Glenn, 1966; Shopper, 1974). As discussed in Chapter I, because of the intense dependency that develops in these relationships, aggression must be strictly held in check.

The price of this may be loss of identity. Thus, a degree of conscious hostility in the sibling relationship may serve the function of increased self-differentiation.

A third explanation is possible. It is possible that subjects who reported greater hostility toward their closest-in-age siblings felt more hostility because they felt greater attachment and identification with their parents. It could be that the greater achievement motivation and conformity, along with the lessened outgoingness with peers arises from the strong tie to the parents. Sutton-Smith and Rosenberg (1970) proposed such an explanation for the presumed greater achievement motivation and conformity of first-born children, assuming that first-borns would be more likely to have such a strong, intense tie to the parents. However, a child of any ordinal position may be capable of such a relationship with the parent, and such a child may harbor greater hostility to his or her siblings.

## Companionship

It was hypothesized that companionship would predict need for affiliation and sociability. This hypothesis was not supported with regard to either personality feature.

Although Companionship is an important factor on the SRQ itself, it showed relatively little predictive power on the personality variables investigated in this project.

Companionship was a significant positive predictor of CPI Socialization, which was related to conformity. Thus, it showed a weak relationship to conformity.

It is difficult to explain the paucity of findings with regard to the Companionship factor. One might expect that the experience of the sibling as a close friend would generalize to social attitudes as an individual matures. This could lead to the ability to trust and to establish close relationships outside the family. It is possible that CPI scales do not assess the capacity for deep, intimate relationships. The CPI may measure more easily an individual's capacity to establish congenial, casual relationships. Another explanation may be that the close tie to the sibling in childhood could inhibit the interest in or ability to establish close relationships outside of the family.

## Loyalty

It was hypothesized that the degree of dependency would predict need for affiliation, conformity, and sociability. As noted earlier, a pure Dependency factor did not emerge in the factor analysis. Some of the hypothesized Dependency items emerged in the Identification factor, and another significant group fell into a factor labeled Loyalty. The results regarding Identification

will be discussed below. In this section, the results in relation to the Loyalty factor will be examined.

In relation to all three of the above traits, need for affiliation, conformity, and sociability, this hypothesis was not supported. Loyalty was related to some other personality features, however.

In canonical correlation analysis lower Loyalty scores predicted higher need for achievement, when combined with high Hostility and low Caretaking scores. Higher Loyalty scores also predicted lower scores on Femininity. Loyalty was not a significant predictor for any other personality features.

The finding that Loyalty is associated with lower need for achievement is interesting. This may again relate to the issues raised in relation to the effects of hostility upon personality. Intense sibling loyalty and interdependence may actually inhibit an individual's normal aggressiveness for fear of harming or losing a much-needed ally.

The finding that Loyalty is associated with lower Femininity may well be due to the fact that male subjects, who as noted earlier tended top obtain higher scores on Loyalty, also, not surprisingly, obtained lower scores on Femininity.

## Caretaking

It was hypothesized that the degree of Caretaking would predict need for achievement and need for affiliation. This hypothesis was partially supported. Caretaking was related to need for achievement in canonical correlation analysis. On the first canonical variable Caretaking contributed positively to the prediction of task-oriented achievement motivation. Caretaking showed a negative correlation with the second canonical variable, indicating that low Caretaking scores contributed to the prediction of high need for achievement in both interpersonal and task-oriented spheres. Caretaking was not a significant predictor of need for affiliation. This factor did contribute in canonical correlation analysis to the prediction of conformity. Low scores on Caretaking in combination with high scores on Identification predicted low conformity.

The results regarding the relationship between Caretaking and need for achievement are somewhat complicated. The experience of being responsible for a sibling may be translated into a desire to dominate and succeed in the circumscribed area of academics and work. In relation to interpersonal dominance, the experience of control and responsibility for a sibling seems to reverse itself in later life. Bank and Kahn (1982) pointed out that a parental child often experiences that care of a

sibling as a burden. It may be that caretaking experiences lead in later life to increased desires not to care for others, but to be cared for by others. This could lead to decreased desire for status and control as well as general achievement. The results regarding conformity and Caretaking suggest that lack of caretaking experiences may contribute to lesser awareness and/or willingness to adapt oneself to social convention. The impression is that individuals who are given a great deal of responsibility for siblings may develop into very cautious, responsible persons who may on some level long to reverse roles.

## Identification

It was hypothesized that the degree of identification would predict need for affiliation, conformity, and sociability. This hypothesis was not supported for need for affiliation and sociability. It was supported in relation to conformity. Identification predicted less conformity, both in multiple regression and canonical correlation analyses. Subjects who obtained higher scores on Identification were less responsible and conforming than others. Identification was not a predictor of any other personality features investigated.

The finding that high Identification scores predicted lower social conformity suggests that the rather regressive, dependent attitudes expressed in this factor

are related to a view of oneself as having a less responsible, more impulsive style in later life. It is likely that when such an intense identification develops towards a sibling, this reflects a lack of parental nurturance. As noted by Bank and Kahn (1982) a child can seldom have the maturity to take the place of a parent. Thus, children who look to their siblings as parental objects are likely to be frustrated and to find role models who are somewhat lacking. Again this problem has been noted in twinning phenomena (Joseph, 1961; Joseph & Tabor, 1961; Glenn, 1966). Since the primary identification is with a child rather than with an adult, conscience development may be impaired. Such individuals may have more difficulty in negotiating between their own impulses and the demands of society.

Overall, it can be concluded that SRQ factors were significant predictors of a number of personality features. Hostility and Rivalry were the most powerful predictors. Identification was also important in predicting these traits, as were Caretaking and Loyalty. Companionship was the weakest factor in terms of predicting these characteristics.

## Interactions Between SRQ Factors and Sibling Structure Variables

It was hypothesized that the sibling relationship factors would interact with sibling structure variables in predicting sex-role orientation. The findings were consistent with this hypothesis. Higher Rivalry scores and lower numbers of male and female siblings interacted to predict higher Femininity. Thus, it may be that rivalry and smaller family size are related to feminine sex-role orientation, which on the CPI is described by gentleness and sympathetic attitudes. Again the interaction between Hostility and number of female siblings was also significant such that higher Hostility and higher number of female siblings predicted higher Femininity.

These findings suggest that high sibling rivalry within a small family is associated with greater acceptance of and patience with others later on in life. At the same time sibling aggression in the presence of a large number of female siblings also has this result.

## Sibling Structure Variables

In order to examine the final hypothesis, that sibling relationships would better predict personality characteristics than would sibling structure variables, it is necessary to first discuss the findings in relation to

both relative and absolute birth order variables. This discussion follows below.

## Relative Birth Order

It should first be noted that the idea of relative birth order, i.e., sibling status in relation to the closest-in-age sibling, does appear to be a valid concept, with effects that can be differentiated from the effects of absolute birth order, or overall sibling status. In a number of instances in this study, relative birth order variables demonstrated predictive power independent of that shown by absolute birth order variables.

Of the relative birth order variables, Sex was the most effective in predicting personality characteristics. Females were higher in need for achievement, conformity, sociability (CPI Tolerance only), and femininity than were males.

The variable Group, the relative sibling status of the closest-in-age sibling, showed no significant main effects in predicting personality traits. This variable interacted significantly to predict certain traits. The three-way interaction between Sex, Group, and Absolute Age Difference was significant such that males with older or younger sisters and large age differences were higher on conformity, while no clear pattern emerged among females. In addition, Sex and Group interacted in predicting

Femininity. Group affected males and females differently. For females, having a sister as closest-in-age sibling predicted higher Femininity. For males, having either a younger sister or an older brother closest-in-age predicted higher Femininity. Females may model their closest-in-age siblings, while the pattern for males appears more complicated. Males may model younger siblings in sex-role orientation while they may react against older siblings.

The variable of Absolute Age Difference showed a significant main effect in predicting need for achievement, with greater age difference predicting higher scores on this characteristic. The interaction of this variable with Sex and Group in predicting conformity was described above.

Sex was thus the most powerful predictor of the relative birth order variables. The findings suggest that having a female as closest-in-age sibling contributes to greater conformity and feminine sex-role orientation. Thus it appears that the sex of the closest-in-age sibling may have some impact upon personality. Age difference seems to have relatively little importance. Relative birth order variables seem to have the greatest relationship to sex-role orientation. The findings regarding sex-role orientation are not directly comparable with earlier research as these studies did not examine relative birth order. In contradiction to Sutton-Smith

and Rosenberg's (1970) conclusions, these findings indicate that the impact of sibling sex is not simple and direct; it varies with the subject's sex and whether the subject is older or younger than the sibling.

Absolute Birth Order

Among the variables, Sex was again the most powerful. Females were higher on scales related to conformity, sociability, and femininity. Sex also interacted with other variables, discussed below, in predicting need for affiliation, conformity, sex-role orientation, and CPI Well-being.

The next most powerful variable in this group was Number of Younger Sisters. Subjects with more younger sisters were higher on need for affiliation, conformity, and femininity. Interactions indicated that this was true for both males and females in regard to need for affiliation. This effect was especially true for females in relation to conformity.

The Number of Younger Brothers had a negative relation to conformity and sociability. Interactions showed that this effect was more pronounced in males than in females with regard to conformity. Another interaction indicated that females with large numbers of younger brothers were higher in need for affiliation.

Ordinal Position was able to predict some personality variables. Earlier-born subjects were lower in sociability. This variable interacted with family size such that earlier-born subjects from smaller families were higher in confomity. In addition, later-born males were higher on CPI Well-being. These findings tend to agree with most of the studies of ordinal position discussed in Chapter 1. These studies tended to find that first-borns were higher in conformity.

Number of Older Brothers, Number of Older Sisters, and Family Size were relatively weak predictors of personality. Subjects with larger numbers of older brothers were lower in sociability, as were subjects with larger families in general. Subjects with larger numbers of older sisters were lower in femininity, especially males. This may be an example of the counteractive effect described by Sutton-Smith and Rosenberg (1970), wherein a child reacts against the model set by the sibling.

A number of conclusions and comments can be made regarding the above findings. First of all, sex appears to be the most powerful among these variables in predicting these characteristics. In general, it appears that females may be more sensitive and responsive to their social environment. Having a large number of younger sisters possibly tends to increase these tendencies in both male and female subjects. The presence of younger brothers

may tend to have the opposite effect, being associated with more impulsivity and less sociability. This effect was especially pronounced in males. It may be that the presence of a large group of male or female siblings, particularly if they are younger, influences each child in the family to adopt either male or female cultural stereotypes for him- or herself. The notion of females being more socially adept and conforming, and males being more independent and impulsive certainly fits with our current cultural stereotypes regarding sex differences.

The findings regarding need for affiliation are particularly interesting. These findings tend to agree with those of Schachter (1959). Having large numbers of younger sisters, and for females, younger brothers as well, would tend to be associated with having an earlier-born ordinal position, and, as noted above, these variables were associated with greater need for affiliation. However, Ordinal Position itself was not a significant predictor of need for affiliation. Thus, it may be that the presence of younger siblings in the family is what increases need for affiliation, rather than Schachter's hypothesis about the special relationship between first-borns' and their parents. It may be that something in the relationship with younger siblings leads to an increase in this trait. The findings of this study suggest that younger siblings in general may have more of

an effect upon personality than do older siblings. The rather puzzling correlations between (1) Caretaking and being younger than the closest-in-age sibling, and (2) Identification and being older than the closest-in-age sibling discussed earlier may be relevant here. It may be that older siblings in a family perceive more dependent relationships with their younger siblings than has been recognized heretofore. Perhaps the experience of "dethronement" (for each child, not only the first-born) leads not only to rivalry, but also to dependency upon and identification with the younger sibling. This might represent an effort to replace the loss of parental attention, as occurs in the twinning relationship. In addition, to the extent that the younger sibling is viewed as an aggressive usurper, identification with the sibling may reflect the psychological defense of identification with the aggressor. In this situation, a person identifies with a person perceived as aggressive in order to avoid feelings of anger and helplessness.

Another important finding is that variables such as sex and number of younger siblings of different sexes seem to be more powerful predictors of personality than ordinal position in itself. This suggests that it is very important to look at the totality of sibling structure in conducting this type of research, rather than relying upon ordinal position alone.

It is difficult to make a definitive statement regarding the hypothesis that sibling relationship factors can better predict personality features than can sibling structure variables. Both sets of variables appear to contribute to the prediction of the characteristics investigated in this study. Sibling structure variables, namely, sex, sex of closest-in-age sibling, and numbers of male and female siblings, appear to have the upper hand in predicting sex-role orientation. These variables were able to predict a good deal more of the variance of CPI Femininity than were SRQ factors. On the other hand, SRQ factors were able to significantly predict scores on CPI scales related to need for achievement. Both relative and absolute birth order variables were quite limited in this area. Sibling structure variables did a more effective job of predicting need for affiliation than did SRQ factors. However, the relevant variables included much more than simple ordinal position. Both sets of variables, SRQ factors and sibling structure dimensions, showed important predictive ability with regard to the remaining characteristics.

## Family Demographic Variables

Several interesting findings emerged from the analysis of the relationships between the family demographic variables (Socioeconomic Status, Parental Loss and Sibling

Loss) with personality features. Socioeconomic Status was the weakest of these variables. Not surprisingly, higher SES predicted higher achievement orientation. It also predicted higher sociability. The sparse findings in relation to this variable might be due to homogeneity in the sample with regard to SES.

The findings regarding Parental Loss are somewhat surprising. One might expect this to be a damaging experience, but subjects who experienced this loss were higher in achievement motivation, conformity, sociability, and other CPI scales, including Self-acceptance and Psychological-mindedness. It is not easy to explain these results. It is possible that parental loss may have led to greater self-reliance in these subjects. It would be helpful to know more about the circumstances of the loss. In all of these subjects, the loss was due to divorce. Wallerstein and Kelly (1980) have found that under certain conditions, children with divorced parents may be as well adjusted as children who have not experienced this stress.

The findings regarding Sibling Loss are not surprising, except perhaps in their strength, considering that the findings are based upon only nine subjects who reported such a loss. It was noted earlier that Sibling Loss showed near significant correlations with the Identification and Rivalry factors. It was suggested that these findings might represent a type of pathological

mourning process in these subjects. It was further found that subjects who had lost a sibling were significantly lower on need for achievement, and sociability, and significantly higher in need for affiliation. They were also lower on CPI Well-being, Intellectual Efficiency, and Psychological-mindedness. These results suggest that the experience of sibling loss may indeed be damaging, perhaps leaving the individual inhibited in relation to achievement and social interaction, insecure, and self-doubting society.

## Implications for Future Research

The results of this investigation indicate that the affective dimensions of childhood sibling relationships, as retrospectively reported by college students, do indeed have a relationship to personality features in these subjects. This project has further shown that the SRQ can be a useful instrument in assessing these components. A great deal of further research into the nature and impact of sibling relationships is needed.

This investigation indicates that SRQ factors are able to predict personality features as assessed by self-report questionnaire. It would be useful to utilize the SRQ in predicting personality features assessed through behavioral measures. This would certainly increase the predictive value of the questionnaire. It would also be

interesting to look at other personality characteristics not investigated in this study. As was noted above, the CPI may not assess capacity for close relationships. Fruitful research could be conducted on the impact of sibling relationships upon close friendships and marital relationships. The SRQ could also prove to be a helpful instrument in clinical research. Studies into the relationship between SRQ factors in clinical versus normal populations would contribute to the understanding of how these emotional dimensions may enhance or hinder psychological development. Another area that would be interesting to investigate with the SRQ is the phenomena of twinning reactions. Most of the research in this area to date has been based upon observations made in psychotherapy and psychoanalytic processes. The SRQ could provide a more objective assessment of these phenomena.

One major area where more research is needed is into the interactions between the parent-child relationship and the sibling relationship. Several speculations were made in the discussion above concerning the effects of the parent-child relationship upon the development of certain aspects of the sibling relationship. Further research is needed to understand these effects, as well as the ways in which the sibling relationship affects the parent-child relationship.

Results of this investigation indicate that both emotional and structural components of childhood sibling relationships are significant predictors of later self-reported personality traits. Furthermore, there are important relationships between these two sets of variables. The ways in which the different components interact need further investigation. Among sibling structure variables, the important findings regarding possible effects of younger siblings upon older ones need more exploration and clarification.

The results regarding sibling loss represent another area which merits further investigation. It would be interesting to see whether these results would be replicated in a larger sample of subjects who had experienced this type of loss. The current study suggests that the loss of a sibling through death may be more damaging than loss of a parent through divorce.

The purpose of this investigation was to develop an instrument to assess the emotional dimensions of childhood sibling relationships and to use this instrument to explore the relationship of these dimensions to personality. It is hoped that the results of these studies will focus increased attention upon the affective components of sibling relationships and how these aspects both shape and are shaped by the individual's personality and total family system.

# APPENDICES

# APPENDIX A

# ORIGINAL POOL OF ITEMS AND HYPOTHESIZED SCALES OF THE SIBLING RELATIONSHIP QUESTIONNAIRE

## APPENDIX A

## ORIGINAL POOL OF ITEMS AND HYPOTHESIZED SCALES OF SIBLING RELATIONSHIP QUESTIONNAIRE

### Hostility Scale

From the start, my brother/sister and I just never got along.

I often wished that my brother/sister had never been born.

My brother/sister and I used to hit each other a lot.

I liked to tease and make fun of my brother/sister.

I used to like to deceive my brother/sister.

I used to complain a lot about my brother/sister to the rest of my family.

My brother/sister was very annoying to me.

My parents were always breaking up arguments between my brother/sister and me.

I used to have dreams about bad things happening to my brother/sister.

I thought my brother/sister was obnoxious.

I liked to try to scare my brother/sister.

I felt pleased when my parents were mad at my brother/sister.

After an argument, my brother/sister and I never stayed mad at each other for very long. (R)

I had little reason to be angry with my brother/sister. (R)

I felt that it was wrong to fight with your own brothers and sisters. (R)

There was never any physical violence between my brother/sister and me. (R)

I tried hard to avoid arguments with my brother/sister. (R)

I liked to pinch and slap my brother/sister.

My brother/sister and I rarely argued over doing household chores. (R)

I have been so angry at my brother/sister that I wished to seriously harm him/her.

My brother/sister and I have scars resulting from some of our fights.

I sometimes borrowed my brother's/sister's possessions and accidentally broke or lost them.

Note: (R) indicates scoring was reversed on this item.

## Rivalry Scale

I used to feel that my friends were nicer than those of my sister/brother.

I was pleased when my parents made more of a fuss over my achievements than those of my brother/sister.

I was concerned about whether I was more attractive than my brother/sister.

I used to feel very unhappy at the time of my brother's/sister's birthday.

I was jealous when my brother/sister received special privileges that I did not get.

I often felt upset when my brother/sister got a new toy or clothes.

I frequently used to worry that my parents favored my brother/sister over me.

I was upset if my brother/sister got off more easily than I did in terms of doing household chores.

When one of my parents took us somewhere in the car, my brother/sister and I fought about who sat next to our parent.

I used to feel really happy when I got a better report card than my brother/sister.

I frequently felt intensely envious of my brother/sister.

It seemed like my brother/sister and I were always competing for our parents' attention.

I can remember stealing my brother's/sister's possessions on at least one occasion.

If I heard a compliment about my brother/sister, I was eager to share it with him/her. (R)

I sometimes felt guilty if I outdid my brother/sister in some area. (R)

I tried to avoid competing with my brother/sister. (R)

My parents always treated my brother/sister and me the same. (R)

I used to feel that my parents compared me to my brother/sister a lot.

I felt proud of my brother's/sister's accomplishments. (R)

I frequently felt that my brother/sister was trying to outdo me.

Note: (R) indicates scoring was reversed on this item.

## Companionship Scale

Chores went faster when I worked on them with my brother/sister than when I did them alone.

My brother/sister and I usually shared all or most of our toys.

One of the most enjoyable things I remember about childhood was playing with my brother/sister.

My brother/sister and I used to have a lot of fun inventing "make-believe" games.

My brother/sister was about my best friend when we were children.

I used to enjoy parties and social events more if my brother/sister was there, too.

I used to confide in my brother/sister about issues that I would not discuss with my parents.

I felt closer to my brother/sister than to anyone else in my family.

When my parents were angry at my brother/sister, I often tried to defend him/her.

I was never bored if my brother/sister was around.

My brother/sister and I had special jokes between us that others did not understand.

My brother/sister and I played more with our friends than with each other. (R)

My brother/sister was not much fun to be around. (R)

I did not like to let my brother/sister borrow my possessions. (R)

I never wanted to have much to do with my brother/sister, nor he/she with me. (R)

My brother/sister and I shared a lot of the same friends.

My brother/sister and I liked to get silly and giggly together.

I used to enjoy playing chasing games, like tag, with my brother/sister.

I do not remember playing very much with my brother/sister. (R)

My brother/sister and I used to enjoy complaining to each other about our parents.

Note: (R) indicates scoring was reversed on this item.

## Caretaking Scale

When my brother/sister was scared or unhappy, I used to try to comfort and cheer him/her up.

I liked to try to teach my brother/sister new things.

I was responsible for caring for my brother/sister when my parents were away.

I tried to entertain my brother/sister when he/she was bored.

I felt like more of a parent than a sibling to my brother/sister.

It worried me when my brother/sister was ill.

My parents allowed me to boss my brother/sister around.

I never felt responsible for my brother's/sister's misbehavior. (R)

Instead of going to my parents, I sometimes disciplined my brother/sister myself when he/she did something wrong.

I used to worry quite a bit about my brother/sister.

I would not let my brother/sister tag along after me when I was with my friiends. (R)

I was rarely given the responsibility of taking care of my brother/sister. (R)

My parents were in charge of all the discipline in my home. (R)

I could control my brother's/sister's behavior quite easily.

My brother/sister took more responsibility around the house than I did. (R)

I used to feel that brothers and sisters should watch out for one another.

I used to talk for my brother/sister if he/she felt too shy to talk for himself/herself.

It did not disturb me to see my brother/sister crying. (R)

One of our favorite games was to pretend that I was my brother's/sister's parent, and he/she was my child.

If my brother/sister neglected to do some household task, I often did it for him/her.

Note: (R) indicates scoring was reversed on this item.

## Dependency Scale

I felt very upset when my brother/sister showed anger or disapproval towards me.

I used to feel hurt when my brother/sister seemed to prefer playing with someone other than me.

I hated to be separated from my brother/sister.

My brother/sister used to try to comfort me when I was upset.

If I got scared at night, I would call for my brother/sister.

My relationship with my brother/sister was as important to me as my relationship with my parents.

I felt much more secure when my brother/sister was with me.

I usually ignored any advice my brother/sister gave me. (R)

I could never rely on my brother/sister for anything when we were children. (R)

I never wanted to discuss my problems with my brother/sister. (R)

I preferred to confide in my parents about my worries, rather than in my brother/sister. (R)

I did not like it when my brother/sister tried to hug or kiss me. (R)

I disliked it when my brother/sister tried to tell me what to do. (R)

When we were little, I liked to sleep in the same bed with my brother/sister.

I often let my brother/sister speak for me instead of speaking for myself.

It upset me if my brother/sister walked home from school with friends rather than me.

My brother/sister often helped me with my schoolwork.

I felt very frustrated when my brother/sister was too busy to play with me or give me his/her attention.

If my parents were away, I usually turned to my brother/sister for when I needed.

I often tried to persuade my brother/sister to do my household chores for me.

Note: (R) indicates scoring was reversed for these items.

## Identification Scale

I used to try to dress like my brother/sister dressed.

I used to think that it would be fun if my brother/sister and I were twins.

If my brother/sister got interested in something, I usually got interested in it, too.

My brother/sister and I shared a lot of the same interests.

It disturbed me when it seemed like my brother/sister was growing apart from me.

It upset me terribly when my brother/sister and I had a disagreement.

My brother/sister and I could practically read each other's minds.

When my brother/sister was punished for something he/she did, I felt almost as bad as if I were being punished myself.

I liked to get clothes that matched my brother's/sister's clothes.

It bothered me when people said that my brother/sister and I looked alike. (R)

My brother/sister and I were complete opposites. (R)

I hated it when my brother/sister tried to imitate me. (R)

I never wanted to be anything like my brother/sister. (R)

I could never understand my brother/sister very well. (R)

I felt that my parents treated us as individuals. (R)

My parents thought it was cute when my brother/sister and I dressed alike.

I could tell how my brother/sister was feeling just by looking at him/her.

I took care not to imitate my brother/sister. (R)

I used to think of my brother/sister as being close to perfect, and I tried to be like him/her.

I sometimes felt that I was my brother's/sister's "shadow."

I identified more with my brother/sister than with my parents.

Note: (R) indicates scoring was reversed on this item.

# APPENDIX B

## ORIGINAL FORM OF THE SIBLING RELATIONSHIP QUESTIONNAIRE

# Sibling Relationship Questionnaire

## Instructions

The statements on the following pages reflect different sorts of feelings, attitudes and events which many people have experienced as children in their relationships with their brothers and/or sisters. Please read each statement and indicate the extent to which you believe the statement was true of your relationship with your brother or sister when you were children. If you Strongly Agree with the statement, circle the letters SA; if you Agree with a little less strength, circle A; if you Mildly Agree, circle MA; if you are truly Undecided, circle U; if you Mildly Disagree, circle MD; if you Disagree a little more than mildly, circle D; and if you Strongly Disagree, circle SD.

If you have more than one brother or sister, please answer each statement in relation to the brother or sister who is closest in age to yourself.

In answering these questions, try to keep in mind your feelings toward your sibling when you were children. Do not spend too much time in thinking about any single item. You may not always be satisfied that there is a good response for you to make to an item. Simply answer in whatever way seems best to you, even though the statement may not apply well to you. Please try to be as honest as possible.

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I hated it when my brother/sister tried to imitate me. | SA | A | MA | U | MD | D | SD |
| 2. I preferred to confide in my parents about my worries, rather than in my sister/brother. | SA | A | MA | U | MD | D | SD |
| 3. I was responsible for caring for my brother/sister when my parents were away. | SA | A | MA | U | MD | D | SD |
| 4. When my sister/brother was scared or unhappy, I used to try to comfort and cheer her/him up. | SA | A | MA | U | MD | D | SD |
| 5. Instead of going to my parents, I sometimes disciplined my brother/sister myself when he/she did something wrong. | SA | A | MA | U | MD | D | SD |
| 6. When my sister/brother was punished for something she/he did, I felt almost as bad as if I were being punished myself. | SA | A | MA | U | MD | D | SD |
| 7. I was never bored if my brother/sister was around. | SA | A | MA | U | MD | D | SD |
| 8. It seemed like my sister/brother and I were always competing for our parents' attention. | SA | A | MA | U | MD | D | SD |
| 9. I would not let my brother/sister tag along after me when I was with my friends. | SA | A | MA | U | MD | D | SD |
| 10. I liked to get clothes that matched my sister's/brother's clothes. | SA | A | MA | U | MD | D | SD |
| 11. I used to feel that my friends were nicer than those of my brother/sister. | SA | A | MA | U | MD | D | SD |
| 12. I used to try to dress like my sister/brother dressed. | SA | A | MA | U | MD | D | SD |
| 13. I hated to be separated from my brother/sister. | SA | A | MA | U | MD | D | SD |
| 14. My sister/brother and I shared a lot of the same interests. | SA | A | MA | U | MD | D | SD |
| 15. I tried to entertain my brother/sister when he/she was bored. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 16. | I used to complain a lot about my sister/brother to the rest of my family. | SA | A | MA | U | MD | D | SD |
| 17. | My brother/sister and I had special jokes between us that others did not understand. | SA | A | MA | U | MD | D | SD |
| 18. | I was rarely given the responsibility of taking care of my sister/brother. | SA | A | MA | U | MD | D | SD |
| 19. | I felt proud of my brother's/sister's accomplishments. | SA | A | MA | U | MD | D | SD |
| 20. | I used to feel really happy when I got a better report card than my sister/brother. | SA | A | MA | U | MD | D | SD |
| 21. | It did not disturb me to see my brother/sister crying. | SA | A | MA | U | MD | D | SD |
| 22. | I felt pleased when my parents were mad at my sister/brother. | SA | A | MA | U | MD | D | SD |
| 23. | My brother/sister and I were complete opposites. | SA | A | MA | U | MD | D | SD |
| 24. | My sister/brother and I shared a lot of the same friends. | SA | A | MA | U | MD | D | SD |
| 25. | After an argument, my brother/sister and I never stayed mad at each other for very long. | SA | A | MA | U | MD | D | SD |
| 26. | I did not like it when my sister/brother tried to hug or kiss me. | SA | A | MA | U | MD | D | SD |
| 27. | I could tell how my brother/sister was feeling just by looking at him/her. | SA | A | MA | U | MD | D | SD |
| 28. | My sister/brother was about my best friend when we were children. | SA | A | MA | U | MD | D | SD |
| 29. | I felt like more of a parent than a sibling to my brother/sister. | SA | A | MA | U | MD | D | SD |
| 30. | Chores went faster when I worked on them with my sister/brother than when I did them alone. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 31. | My parents allowed me to boss my brother/sister around. | SA | A | MA | U | MD | D | SD |
| 32. | My sister/brother and I rarely argued over doing household chores. | SA | A | MA | U | MD | D | SD |
| 33. | I liked to pinch and slap my brother/sister. | SA | A | MA | U | MD | D | SD |
| 34. | My sister/brother and I played more with our friends than with each other. | SA | A | MA | U | MD | D | SD |
| 35. | It bothered me when people said that my brother/sister and I looked alike. | SA | A | MA | U | MD | D | SD |
| 36. | I felt very frustrated when my sister/brother was too busy to play with me or give me her/his attention. | SA | A | MA | U | MD | D | SD |
| 37. | I never wanted to discuss my problems with my brother/sister. | SA | A | MA | U | MD | D | SD |
| 38. | I never wanted to be anything like my sister/brother. | SA | A | MA | U | MD | D | SD |
| 39. | I felt that my parents treated us as individuals. | SA | A | MA | U | MD | D | SD |
| 40. | If my parents were away, I usually turned to my brother/sister for what I needed. | SA | A | MA | U | MD | D | SD |
| 41. | I liked to try to teach my sister/brother new things. | SA | A | MA | U | MD | D | SD |
| 42. | I used to enjoy playing chasing games, like tag, with my brother/sister. | SA | A | MA | U | MD | D | SD |
| 43. | I could never understand my sister/brother very well. | SA | A | MA | U | MD | D | SD |
| 44. | I was pleased when my parents made more of a fuss over my achievements than those of my brother/sister. | SA | A | MA | U | MD | D | SD |
| 45. | I often let my sister/brother speak for me instead of speaking for myself. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 46. | My relationship with my brother/sister was as important to me as my relationship with my parents. | SA | A | MA | U | MD | D | SD |
| 47. | I sometimes borrowed my sister's/brother's possessions and accidentally broke or lost them. | SA | A | MA | U | MD | D | SD |
| 48. | It upset me terribly when my brother/sister and I had a disagreeement. | SA | A | MA | U | MD | D | SD |
| 49. | I do not remember playing very much with my sister/brother. | SA | A | MA | U | MD | D | SD |
| 50. | I used to worry quite a bit about my brother/ sister. | SA | A | MA | U | MD | D | SD |
| 51. | I did not like to let my sister/brother borrow my possessions. | SA | A | MA | U | MD | D | SD |
| 52. | I frequently used to worry that one or both of my parents favored my brother/ sister over me. | SA | A | MA | U | MD | D | SD |
| 53. | I was concerned about whether I was more attractive than my sister/brother. | SA | A | MA | U | MD | D | SD |
| 54. | I usually ignored any advice my brother/ sister gave me. | SA | A | MA | U | MD | D | SD |
| 55. | I liked to tease and make fun of my sister/ brother. | SA | A | MA | U | MD | D | SD |
| 56. | I often tried to persuade my brother/sister to do my household chores for me. | SA | A | MA | U | MD | D | SD |
| 57. | I used to think that it would be fun if my sister/brother and I were twins. | SA | A | MA | U | MD | D | SD |
| 58. | I used to feel hurt when my brother/sister seemed to prefer playing with someone other than me. | SA | A | MA | U | MD | D | SD |
| 59. | I used to have dreams about bad things happening to my sister/brother. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 60. | My brother/sister and I used to enjoy complaining to each other about our parents. | SA | A | MA | U | MD | D | SD |
| 61. | I could never rely on my sister/brother for anything when we were children. | SA | A | MA | U | MD | D | SD |
| 62. | I often wished that my brother/sister had never been born. | SA | A | MA | U | MD | D | SD |
| 63. | One of the most enjoyable things I remember about childhood was playing with my sister/brother. | SA | A | MA | U | MD | D | SD |
| 64. | I liked to try to scare my brother/sister. | SA | A | MA | U | MD | D | SD |
| 65. | My sister/brother and I used to have a lot of fun inventing "make-believe" games. | SA | A | MA | U | MD | D | SD |
| 66. | I had little reason to be angry with my brother/sister. | SA | A | MA | U | MD | D | SD |
| 67. | I never felt responsible for my sister's/brother's misbehavior. | SA | A | MA | U | MD | D | SD |
| 68. | My brother/sister and I used to hit each other a lot. | SA | A | MA | U | MD | D | SD |
| 69. | When one of my parents took us somewhere in the car, my sister/brother and I fought about who sat next to our parent. | SA | A | MA | U | MD | D | SD |
| 70. | My brother/sister was very annoying to me. | SA | A | MA | U | MD | D | SD |
| 71. | I sometimes felt guilty if I outdid my sister/brother in some area. | SA | A | MA | U | MD | D | SD |
| 72. | If my brother/sister got interested in something, I usually got interested in it, too. | SA | A | MA | U | MD | D | SD |
| 73. | I identified more with my sister/brother than with my parents. | SA | A | MA | U | MD | D | SD |
| 74. | I often felt upset when my brother/sister got a new toy or clothes. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 75. | When we were little, I liked to sleep in the same bed with my sister/brother. | SA | A | MA | U | MD | D | SD |
| 76. | I used to feel that my parents compared me to my brother/sister a lot. | SA | A | MA | U | MD | D | SD |
| 77. | I used to like to deceive my sister/brother. | SA | A | MA | U | MD | D | SD |
| 78. | It worried me when my brother/sister was ill. | SA | A | MA | U | MD | D | SD |
| 79. | My sister/brother and I usually shared all or most of our toys. | SA | A | MA | U | MD | D | SD |
| 80. | My brother/sister and I could practically read each other's minds. | SA | A | MA | U | MD | D | SD |
| 81. | My sister/brother took more responsibility around the house than I did. | SA | A | MA | U | MD | D | SD |
| 82. | When my parents were angry at my brother/sister, I often tried to defend him/her. | SA | A | MA | U | MD | D | SD |
| 83. | My sister/brother was not much fun to be around. | SA | A | MA | U | MD | D | SD |
| 84. | I thought that my brother/sister was obnoxious. | SA | A | MA | U | MD | D | SD |
| 85. | If I got scared at night, I would call for my sister/brother. | SA | A | MA | U | MD | D | SD |
| 86. | I used to enjoy parties and social events more if my brother/sister was there, too. | SA | A | MA | U | MD | D | SD |
| 87. | If my sister/brother neglected to do some household task, I often did it for her/him. | SA | A | MA | U | MD | D | SD |
| 88. | My brother/sister used to try to comfort me when I was upset. | SA | A | MA | U | MD | D | SD |
| 89. | I tried to avoid competing with my sister/brother. | SA | A | MA | U | MD | D | SD |
| 90. | I tried hard to avoid arguments with my brother/sister. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 91. | I can remember stealing my sister's/brother's possessions on at least one occasion. | SA | A | MA | U | MD | D | SD |
| 92. | I felt very upset when my brother/sister showed anger or disapproval towards me. | SA | A | MA | U | MD | D | SD |
| 93. | I frequently felt that my sister/brother was trying to outdo me. | SA | A | MA | U | MD | D | SD |
| 94. | My brother/sister and I liked to get silly and giggly together. | SA | A | MA | U | MD | D | SD |
| 95. | I used to think of my sister/brother as being close to perfect, and I tried to be like her/him. | SA | A | MA | U | MD | D | SD |
| 96. | It upset me if my brother/sister walked home from school with friends rather than with me. | SA | A | MA | U | MD | D | SD |
| 97. | It disturbed me when it seemed like my sister/brother was growing apart from me. | SA | A | MA | U | MD | D | SD |
| 98. | From the start, my brother/sister and I just never got along. | SA | A | MA | U | MD | D | SD |
| 99. | My sister/brother and I have scars resulting from some of our fights. | SA | A | MA | U | MD | D | SD |
| 100. | I used to confide in my brother/sister about issues that I would not discuss with my parents. | SA | A | MA | U | MD | D | SD |
| 101. | My parents were always breaking up arguments between my sister/brother and me. | SA | A | MA | U | MD | D | SD |
| 102. | I disliked it when my brother/sister tried to tell me what to do. | SA | A | MA | U | MD | D | SD |
| 103. | I never wanted to have much to do with my sister/brother, nor she/he with me. | SA | A | MA | U | MD | D | SD |
| 104. | I took care not to imitate my brother/sister. | SA | A | MA | U | MD | D | SD |
| 105. | I was upset if my sister/brother got off more easily than I did in terms of doing household chores. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 106. | One of our favorite games was to pretend that I was my brother's/sister's parent and he/she was my child. | SA | A | MA | U | MD | D | SD |
| 107. | My parents thought it was cute when my sister/brother and I dressed alike. | SA | A | MA | U | MD | D | SD |
| 108. | There was never any physical violence between my brother/sister and me. | SA | A | MA | U | MD | D | SD |
| 109. | I sometimes felt that I was my sister's/ brother's "shadow." | SA | A | MA | U | MD | D | SD |
| 110. | If I heard a compliment about my brother/ sister, I was eager to share it with him/ her. | SA | A | MA | U | MD | D | SD |
| 111. | I have been so angry at my sister/brother that I wished to seriously harm her/him. | SA | A | MA | U | MD | D | SD |
| 112. | I used to talk for my brother/sister if he/ she felt too shy to talk for himself/ herself. | SA | A | MA | U | MD | D | SD |
| 113. | I was jealous when my sister/brother received special privileges that I did not get. | SA | A | MA | U | MD | D | SD |
| 114. | I felt that it was wrong to fight with your own brothers and sisters. | SA | A | MA | U | MD | D | SD |
| 115. | I frequently felt intensely envious of my sister/brother. | SA | A | MA | U | MD | D | SD |
| 116. | My parents were in charge of all the discipline in my home. | SA | A | MA | U | MD | D | SD |
| 117. | I used to feel very unhappy at the time of my brother's/sister's birthday. | SA | A | MA | U | MD | D | SD |
| 118. | I felt closer to my sister/brother than to anyone else in my family. | SA | A | MA | U | MD | D | SD |
| 119. | I used to feel that brothers and sisters should watch out for one another. | SA | A | MA | U | MD | D | SD |
| 120. | I could control my sister's/brother's behavior quite easily. | SA | A | MA | U | MD | D | SD |

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 121. My brother/sister often helped me with my schoolwork. | SA | A | MA | U | MD | D | SD |
| 122. I felt much more secure when my sister/ brother was with me. | SA | A | MA | U | MD | D | SD |
| 123. My parents always treated my brother/ sister and me the same. | SA | A | MA | U | MD | D | SD |

# APPENDIX C

# FINAL FORM OF THE SIBLING RELATIONSHIP QUESTIONNAIRE

# SIBLING RELATIONSHIP QUESTIONNAIRE

## Instructions

The statements on the following pages reflect different sorts of feelings, attitudes and events which many people have experienced as children in their relationships with their brothers and/or sisters. Please read each statement and indicate the extent to which you believe the statement was true of your relationship with your brother or sister when you were children. If you Strongly Agree with the statement, circle the letters SA; if you Agree with a little less strength, circle A; if you Mildly Agree, circle MA; if you are truly Undecided, circle U; if you Mildly Disagree, circle MD; if you Disagree a little more than mildly, circle D; and if you Strongly Disagree, circle SD.

If you have more than one brother or sister, please answer each statement in relation to the brother or sister who is closest in age to yourself.

In answering these questions, try to keep in mind your feelings toward your sibling when you were children. Do not spend too much time in thinking about any single item. You may not always be satisfied that there is a good response for you to make to an item. Simply answer in whatever way seems best to you, even though the statement may not apply well to you. Please try to be as honest as possible.

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 1. I frequently felt that my sister/brother was trying to outdo me. | SA | A | MA | U | MD | D | SD |
| 2. I could never rely on my brother/sister for anything when we were children. | SA | A | MA | U | MD | D | SD |
| 3. I used to feel that sisters and brothers should watch out for one another. | SA | A | MA | U | MD | D | SD |
| 4. I felt closer to my brother/sister than to anyone else in my family. | SA | A | MA | U | MD | D | SD |
| 5. I was never bored if my sister/brother was around. | SA | A | MA | U | MD | D | SD |
| 6. I liked to tease and make fun of my brother/sister. | SA | A | MA | U | MD | D | SD |
| 7. My sister/brother and I shared a lot of the same friends. | SA | A | MA | U | MD | D | SD |
| 8. I never wanted to be anything like my brother/sister. | SA | A | MA | U | MD | D | SD |
| 9. I did not like to let my sister/brother borrow my possessions. | SA | A | MA | U | MD | D | SD |
| 10. I frequently felt intensely envious of my brother/sister. | SA | A | MA | U | MD | D | SD |
| 11. I never wanted to have much to do with my sister/brother, nor she/he with me. | SA | A | MA | U | MD | D | SD |
| 12. My brother/sister and I could practically read each other's minds. | SA | A | MA | U | MD | D | SD |
| 13. I have been so angry at my sister/brother that I wished to seriously harm her/him. | SA | A | MA | U | MD | D | SD |
| 14. I do not remember playing very much with my brother/sister. | SA | A | MA | U | MD | D | SD |
| 15. I liked to try to scare my sister/brother. | SA | A | MA | U | MD | D | SD |
| 16. If my parents were away, I usually turned to my brother/sister for what I needed. | SA | A | MA | U | MD | D | SD |

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 17. There was never any physical violence between my sister/brother and me. | SA | A | MA | U | MD | D | SD |
| 18. I preferred to confide in my parents about my worries, rather than in my brother/sister. | SA | A | MA | U | MD | D | SD |
| 19. I used to feel that my friends were nicer than those of my sister/brother. | SA | A | MA | U | MD | D | SD |
| 20. I could control my brother's/sister's behavior quite easily. | SA | A | MA | U | MD | D | SD |
| 21. When my sister/brother was scared or unhappy, I used to try to comfort and cheer her/him up. | SA | A | MA | U | MD | D | SD |
| 22. I was upset if my brother/sister got off more easily than I did in terms of doing household chores. | SA | A | MA | U | MD | D | SD |
| 23. After an argument, my sister/brother and I never stayed mad at each other for very long. | SA | A | MA | U | MD | D | SD |
| 24. I can remember stealing my brother's/sister's possessions on at least one occasion. | SA | A | MA | U | MD | D | SD |
| 25. I never wanted to discuss my problems with my sister/brother. | SA | A | MA | U | MD | D | SD |
| 26. I was pleased when my parents made more of a fuss over my achievements than those of my brother/sister. | SA | A | MA | U | MD | D | SD |
| 27. Instead of going to my parents, I sometimes disciplined my sister/brother myself when she/he did something wrong. | SA | A | MA | U | MD | D | SD |
| 28. My brother/sister was not much fun to be around. | SA | A | MA | U | MD | D | SD |
| 29. I hated to be separated from my sister/brother. | SA | A | MA | U | MD | D | SD |
| 30. I thought that my brother/sister was obnoxious. | SA | A | MA | U | MD | D | SD |

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 31. I tried to entertain my sister/brother when she/he was bored. | SA | A | MA | U | MD | D | SD |
| 32. I felt that my parents treated us as individuals. | SA | A | MA | U | MD | D | SD |
| 33. I sometimes felt that I was my brother's/sister's "shadow." | SA | A | MA | U | MD | D | SD |
| 34. My sister/brother often helped me with my homework. | SA | A | MA | U | MD | D | SD |
| 35. My brother/sister and I usually shared all or most of our toys. | SA | A | MA | U | MD | D | SD |
| 36. When we were little, I liked to sleep in the same bed with my sister/brother. | SA | A | MA | U | MD | D | SD |
| 37. My parents always treated my brother/sister and me the same. | SA | A | MA | U | MD | D | SD |
| 38. I usually ignored any advice my sister/brother gave me. | SA | A | MA | U | MD | D | SD |
| 39. My brother/sister and I rarely argued over doing household chores. | SA | A | MA | U | MD | D | SD |
| 40. I used to think that it would be fun if my sister/brother and I were twins. | SA | A | MA | U | MD | D | SD |
| 41. My brother/sister and I used to hit each other a lot. | SA | A | MA | U | MD | D | SD |
| 42. I sometimes borrowed my sister's/brother's possessions and accidentally broke or lost them. | SA | A | MA | U | MD | D | SD |
| 43. I felt proud of my brother's/sister's accomplishments. | SA | A | MA | U | MD | D | SD |
| 44. I was responsible for caring for my sister/brother when my parents were away. | SA | A | MA | U | MD | D | SD |
| 45. I felt very upset when my brother/sister showed anger or disapproval towards me. | SA | A | MA | U | MD | D | SD |
| 46. My parents were always breaking up arguments between my sister/brother and me. | SA | A | MA | U | MD | D | SD |

| | | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|---|
| 47. | If my brother/sister got interested in something, I usually got interested in it, too. | SA | A | MA | U | MD | D | SD |
| 48. | My sister/brother was very annoying to me. | SA | A | MA | U | MD | D | SD |
| 49. | My brother/sister was about my best friend when we were children. | SA | A | MA | U | MD | D | SD |
| 50. | I used to try to dress like my sister/ brother. | SA | A | MA | U | MD | D | SD |
| 51. | I liked to pinch and slap my brother/ sister. | SA | A | MA | U | MD | D | SD |
| 52. | I felt very frustrated when my sister/ brother was too busy to play with me or give me her/his attention. | SA | A | MA | U | MD | D | SD |
| 53. | I liked to try to teach my brother/sister new things. | SA | A | MA | U | MD | D | SD |
| 54. | I was rarely given the responsibility of taking care of my sister/brother. | SA | A | MA | U | MD | D | SD |
| 55. | My brother/sister used to try to comfort me when I was upset. | SA | A | MA | U | MD | D | SD |
| 56. | I often let my sister/brother speak for me instead of speaking for myself. | SA | A | MA | U | MD | D | SD |
| 57. | I identified more with my brother/sister than with my parents. | SA | A | MA | U | MD | D | SD |
| 58. | I used to confide in my sister/brother about issues that I would not discuss with my parents. | SA | A | MA | U | MD | D | SD |
| 59. | It seemed like my brother/sister and I were always competing for my parents attention. | SA | A | MA | U | MD | D | SD |
| 60. | I could never understand my sister/brother very well. | SA | A | MA | U | MD | D | SD |
| 61. | I had little reason to be angry with my brother/sister. | SA | A | MA | U | MD | D | SD |
| 62. | I tried to avoid competing with my sister/ brother. | SA | A | MA | U | MD | D | SD |

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 63. If I heard a compliment about my brother/sister, I was eager to share it with him/her. | SA | A | MA | U | MD | D | SD |
| 64. From the start, my sister/brother and I just never gor along. | SA | A | MA | U | MD | D | SD |
| 65. I tried hard to avoid arguments with my brother/sister. | SA | A | MA | U | MD | D | SD |
| 66. It upset me terribly when my sister/brother and I had a disagreement. | SA | A | MA | U | MD | D | SD |
| 67. I used to feel hurt when my brother/sister seemed to prefer playing with someone other than me. | SA | A | MA | U | MD | D | SD |
| 68. My sister/brother and I played more with our friends than with each other. | SA | A | MA | U | MD | D | SD |
| 69. It worried me when my brother/sister was ill. | SA | A | MA | U | MD | D | SD |
| 70. My parents allowed me to boss my sister/brother around. | SA | A | MA | U | MD | D | SD |
| 71. It upset me if my brother/sister walked home from school with friends rather than with me. | SA | A | MA | U | MD | D | SD |
| 72. I used to complain a lot about my sister/brother to the rest of my family. | SA | A | MA | U | MD | D | SD |
| 73. I used to like to deceive my brother/sister. | SA | A | MA | U | MD | D | SD |
| 74. I liked to get clothes that matched my sister's/brother's clothes. | SA | A | MA | U | MD | D | SD |
| 75. I felt much more secure when my brother/sister was with me. | SA | A | MA | U | MD | D | SD |
| 76. My sister/brother took more responsibility around the house than I did. | SA | A | MA | U | MD | D | SD |
| 77. I was jealous when my brother/sister received special privileges that I did not get. | SA | A | MA | U | MD | D | SD |
| 78. I never felt responsible for my sister's/brother's misbehavior. | SA | A | MA | U | MD | D | SD |

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 79. I used to worry quite a bit about my brother/sister. | SA | A | MA | U | MD | D | SD |
| 80. My sister/brother and I shared a lot of the same interests. | SA | A | MA | U | MD | D | SD |
| 81. I used to enjoy parties and social events more if my brother/sister was there, too. | SA | A | MA | U | MD | D | SD |
| 82. I used to think of my sister/brother as being close to perfect, and I tried to be like her/him. | SA | A | MA | U | MD | D | SD |
| 83. When my brother/sister was punished for something he/she did, I felt almost as bad as if I were being punished myself. | SA | A | MA | U | MD | D | SD |
| 84. If I got scared at night, I would call for my sister/brother. | SA | A | MA | U | MD | D | SD |
| 85. My brother/sister and I were complete opposites. | SA | A | MA | U | MD | D | SD |
| 86. I used to feel that my parents compared me to my sister/brother a lot. | SA | A | MA | U | MD | D | SD |
| 87. I often felt upset when my brother/sister got a new toy or clothes. | SA | A | MA | U | MD | D | SD |
| 88. I used to talk for my sister/brother if she/he felt too shy to talk for herself/himself. | SA | A | MA | U | MD | D | SD |
| 89. I used to feel really happy when I got a better report card than my brother/sister. | SA | A | MA | U | MD | D | SD |
| 90. My sister/brother and I had special jokes between us that others did not understand. | SA | A | MA | U | MD | D | SD |
| 91. It did not disturb me to see my brother/sister crying. | SA | A | MA | U | MD | D | SD |
| 92. I often tried to persuade my sister/brother to do my household chores for me. | SA | A | MA | U | MD | D | SD |
| 93. One of the most enjoyable things I remember about my childhood was playing with my brother/sister. | SA | A | MA | U | MD | D | SD |

| | Strongly Agree | Agree | Mildly Agree | Undecided | Mildly Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|---|
| 94. I felt pleased when my parents were mad at my sister/brother. | SA | A | MA | U | MD | D | SD |
| 95. When my parents were angry at my brother/sister, I often tried to defend him/her. | SA | A | MA | U | MD | D | SD |
| 96. I was concerned about whether I was more attractive than my sister/brother. | SA | A | MA | U | MD | D | SD |
| 97. My parents thought it was cute when my brother/sister and I dressed alike. | SA | A | MA | U | MD | D | SD |
| 98. It disturbed me when it seemed like my sister/brother was growing apart from me. | SA | A | MA | U | MD | D | SD |
| 99. I frequently used to worry that one or both of my parents favored my brother/sister over me. | SA | A | MA | U | MD | D | SD |
| 100. I felt like more of a parent than a sibling to my sister/brother. | SA | A | MA | U | MD | D | SD |
| 101. My relationship with my brother/sister was as important to me as my relationship with my parents. | SA | A | MA | U | MD | D | SD |

# APPENDIX D

# FAMILY INFORMATION QUESTIONNAIRE

# FAMILY INFORMATION QUESTIONNAIRE

## I. Parental Information

Please answer the following questions concerning your parents:

1. Mother's highest level of education completed_____

2. Father's highest level of education completed_____

3. Are your parents still married to each other? Yes____ No____

4. If your answer to the above question was No, please indicate whether this is due to death or divorce, and your age when this occurred_____

## II. Sibling Information

Please answer the following questions concerning yourself and your siblings:

1. Please list the ages and the sex of all of the children in your family, both living and deceased, including yourself, in order of birth.

| Ordinal Position | Age | Sex |
|---|---|---|
| First-born | | |
| Second-born | | |
| Third-born | | |
| Fourth-born | | |
| Fifth-born | | |
| Sixth-born | | |

(continue below if necessary)

2. Please circle in the above list the ordinal position that refers to yourself.

3. If any of your siblings died before you were 15 years old, please indicate the sibling(s) in the above list by placing an asterisk (*) by the appropriate ordinal position(s).

# APPENDIX E

## CVI SCALES AND THEIR DESCRIPTIONS

## APPENDIX E

## CPI SCALES AND THEIR DESCRIPTIONS

### Class I. Measures, of Poise, Ascendancy, Self-Assurance and Interpersonal Adequacy

| High Scores Tend to be seen as: | Scale and Purpose | Low Scorers Tend to be seen as: |
|---|---|---|
| Aggressive, confident, persistent, and planful; as being persuasive, verbally fluent; as self-reliant and independent; and as having leadership potential and initiative. | 1. Do (dominance) To assess factors of leadership ability, dominance, persistence, and social initiative. | Retiring, inhibited, commonplace, indifferent, silent and unassuming; as being slow in thought and action; as avoiding of situations of tension and decision; and as lacking in self-confidence. |
| Ambitious, active, forceful, insightful, resourceful, and versatile; as being ascendant and self-seeking; effective in communication; and as having personal scope and breadth of interests. | 2. Cs (capacity for status) To serve as an index of an individual's capacity for status (not his actual or achieve status). The scale attempts to measure the personal qualities and attributes which underlie and lead to status. | Apathetic, shy, conventional dull, mild, simple, and slow; as being stereotyped in thinking; restricted in outlook and interests; and as being uneasy and awkward in new or unfamiliar social situations. |
| Outgoing enterprising, and ingenious; as being competitive and forward; and as original and fluent in thought. | 3. Sy (sociability) To identify persons of outgoing sociable, participative temperament. | Awkward, conventional, quiet, submissive, and unassuming; as being detached and passive in attitude; and as being suggestible and overly influenced by others' reactions and opinions. |

| | | |
|---|---|---|
| Clever, enthusiastic, imaginative, quick, informal, spontaneous, and talkative; as being active and vigorous; and as having an expressive, ebullient nature. | 4. Sp (social presence) To assess factors such as poise, spontaneity, and self-confidence in personal and social interaction. | Deliberate, moderate, patient, self-restrained, and simple; as vacillating and uncertain in decision; and as being literal and unoriginal in thinking and judging. |
| Intelligent, outspoken, sharp-witted, demanding, aggressive, and self-centered; as being persuasive and verbally fluent; and as possessing self-confidence and self-assurance. | 5. Sa (self-acceptance) To assess factors such as sense of personal worth, self-acceptance and capacity for independent thinking and action. | Methodical, conservative, dependable, conventional, easygoing, and quiet; as self-abasing and given to feelings of guilt and self-blame; and as being passive in action and narrow in interests. |
| Energetic, enterprising, alert, ambitious, and versatile; as being productive and active; and as valuing work and effort for its own sake. | 6. Wb (sense of well-being) To identify persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment. | Unambitious, leisurely, awkward, cautious, apathetic, and conventional; as being self defensive and apologetic; and as constricted in thought and action. |

| | | |
|---|---|---|
| Calm, patient, practical, slow, self-denying, inhibited, thoughtful, and deliberate; as being strict and thorough in their own work and in their expectations for others; and as being honest and conscientious. | 7. Re (responsibility) To identify persons of conscientious, responsible, and dependable disposition and temperament. | Immature, moody, lazy, awkward, changeable, and disbelieving; as being influenced by personal bias, spite, and dogmatism; and as under-controlled and impulsive in behavior. |
| Enterprising, informal, quick, tolerant, clear thinking, and resourceful; as being intellectually able and verbally fluent; and as having broad and varied interests. | 8. So (socialization) To indicate the degree of social maturity, integrity, and rectitude which the individual has attained. | Defensive, demanding, opinionated, resentful, stubborn, headstrong, rebellious, and undependable; as being guileful and deceitful in dealing with others; and as given to excess, exhibition, and ostentation in their behavior. |
| Co-operative, enterprising, outgoing, sociable warm, and helpful; as being concerned with making a good impression; and as being diligent and persistent. | 9. Sc (self-control) To assess the degree and adequacy of self-regulation and self-control and freedom from impulsivity and self-centeredness. | Impulsive, shrewd, excitable, irritable, self-centered, and uninhibited; as being aggressive and assertive; and as overemphasizing personal pleasure and self-gain. |

## Class II. Measures of Socialization, Maturity, Responsibility, and Intrapersonal Structuring of Values

| High Scores<br>Tend to be seen as: | Scale and Purpose | Low Scorers<br>Tend to be seen as: |
|---|---|---|
| Planful, responsible, thorough, progressive, capable, dignified, and independent; as being conscientious and dependable; resourceful and efficient; and as being alert to ethical and moral issues. | 10. To (tolerance) To identify persons with permissive, accepting, and non-judgmental social beliefs and attitude. | Suspicious, narrow, aloof, wary, and retiring; as being passive and overly judgmental in attitude; and as disbelieving and distrustful in personal and social outlook. |
| Serious, honest, industrious, modest, obliging, sincere, and steady; as being conscientious and responsible; and as being self-denying and conforming. | 11. Gi (good impression) To identify persons capable of creating a favorable impression, and who are concerned about how others react to them. | Inhibited, cautious, shrewd, wary, aloof, and resentful; as being cool and distant in their relationships with others; and as being self-centered and too little concerned with the needs and wants of others. |
| Dependable, moderate, tactful, reliable, sincere, patient, steady, and realistic; as being honest and conscientious; and as having common sense and good judgement. | 12 Cm (communality) To indicate the degree to which an individual's reactions and responses correspond to the modal ("common") pattern established for the inventory. | Impatient, changeable, complicated, imaginative, disorderly, nervous, restless, and confused; as being guileful and deceitful; inattentive and forgetful; and as having internal conflicts and problems. |

## Class III. Measures of Achievement Potential and Intellectual Efficiency

| High Scores<br>Tend to be seen as: | Scale and Purpose | Low Scorers<br>Tend to be seen as: |
|---|---|---|
| Capable, co-operative, efficient, organized, responsible, stable, and sincere; as being persistent and industrious; and as valuing intellectual activity and intellectual achievement. | 13. Ac (achievement via conformance) To identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior. | Coarse, stubborn, aloof, awkward, insecure, and opinionated; as easily disorganized under stress or pressures to conform; and as pessimistic about their occupational futures. |
| Mature, forceful, strong, dominant, demanding, and foresighted; as being independent and self-reliant; and as having superior intellectual ability and judgement. | 14. Ai (achievement via independence) to identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors. | Inhibited, anxious, cautious, dissatisfied, dull, and wary; as being submissive and compliant before authority; and as lacking in self-insight and self-understanding. |
| Efficient, clear-thinking, capable, intelligent, progressive, planful, thorough, and resourceful; as being alert and well-informed; and as placing a high value on cognitive and intellectual matters. | 15. Ie (intellectual efficiency) To indicate the degree of personal and intellectual efficiency which the individual has attained. | Cautious, confused, easygoing, defensive, shallow, and unambitious; as being conventional and stereotyped in thinking; and as lacking in self-direction and self-discipline. |

## Class IV. Measures of Intellectual and Interest Modes

| High Scores<br>Tend to be seen as: | Scale and Purpose | Low Scorers<br>Tend to be seen as: |
|---|---|---|
| Observant, spontaneous, quick, perceptive, talkative, resourceful, and changeable; as being verbally fluent and socially ascendant; and as being rebellious toward rules, restrictions, and constraints. | 16. Py (psychological-mindedness) To measure the degree to which the individual is interested in, and responsive to, the inner needs, motives, and experiences of others. | Apathetic, peaceable, serious, cautious, and unassuming; as being slow and deliberate in tempo; and as being overly conforming and conventional. |
| Insightful, informal, adventurous, confident, humorous, rebellious, idealistic, assertive, and egoistic; as being sarcastic and cynical; and as highly concerned with personal pleasure and diversion. | 17. Fx (flexibility) To indicate the degree of flexibility and adaptability of a person's thinking and social behavior. | Deliberate, cautious, worrying, industrious, guarded, mannerly, methodical, and rigid; as being formal and pedantic in thought; and as being overly deferential to authority, customer, and tradition. |
| Appreciative, patient, helpful, gentle, moderate, persevering, and sincere; as being respectful and accepting of others; and as behaving in a conscientious and sympathetic way. | 18. Fe (femininity) To assess the masculinity or femininity of interests. (High scores indicate more feminine interests, low scores more masculine.) | Outgoing, hard-headed, ambitious, masculine, active, robust, and restless; as being manipulative and opportunistic in dealing with others; blunt and direct in thinking and action; and impatient with delay, indecision, and reflection. |

Note: From California Psychological Inventory Manual, (pp. 10-11) by H. G. Gough, 1975, Palo Alto: Consulting Psychologists Press, Inc., Copyright 1957, 1975 by Consulting Psychologists Press, Inc. Reproduced by special permission of the Publishers, Consulting Psychologists Press, Inc., Palo Alto, CA 94306. Further reproduction is prohibited without the Publisher's consent.

# APPENDIX F

# DESCRIPTION OF TWO- THROUGH EIGHT-FACTOR SOLUTIONS OF THE SRQ: STUDY 2

## APPENDIX F

## DESCRIPTION OF TWO- THROUGH EIGHT-FACTOR SOLUTIONS OF THE SRQ: STUDY 2

### Two-Factor Solution

| | Factor 1 | Factor 2 |
|---|---|---|
| Predominant Content: | Companionship, Loyalty, Denial of Hostility and Rivalry | Identification, Loyalty, Denial of Caretaking |

### Three-Factor Solution

| | Factor 1 | Factor 2 | Factor 3 |
|---|---|---|---|
| Predominant Content: | Companionship Identification, Loyalty | Hostility Rivalry | Caretaking |

### Four-Factor Solution

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 |
|---|---|---|---|---|
| Predominant Content: | Companionship, Identifcation, Loyalty | Rivalry | Hostility | Caretaking |

### Five-Factor Solution

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|
| Predominant Content: | Companionship | Loyalty Identification | Hostility | Caretaking | Rivalry |

## Six-Factor Solution

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|
| Predominant Content: | Companionship | Identification | Caretaking | Hostility | Rivalry |

| | Factor 6 |
|---|---|
| Predominant Content: | Loyalty |

## Seven-Factor Solution

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|
| Predominant Content: | Companionship | Identification | Caretaking | Hostility | Rivalry |

| | Factor 6 | Factor 7 |
|---|---|---|
| Predominant Content: | Loyalty | Wish to Control Sibling |

## Eight-Factor Solution

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|
| Predominant Content: | Companionship | Identification | Caretaking | Hostility | Rivalry |

| | Factor 6 | Factor 7 | Factor 8 |
|---|---|---|---|
| Predominant Content: | Loyalty | Wish to Control Sibling | Heterogeneous Rivalry, Identification |

# APPENDIX G

## SRQ FACTOR SCALES AND ITEM LOADINGS: STUDY 2

## APPENDIX G

## SRQ FACTORS AND ITEM LOADINGS: STUDY 2

| Item No. | Loading | Item |
|---|---|---|
| Factor I Compansionship (26 items) | | |
| 64 | .75 | From the start, my sister/brother and I just never got along. (R) |
| 28 | .69 | My brother/sister was not much fun to be around. (R) |
| 60 | .68 | I could never understand my sister/brother very well. (R) |
| 11 | .66 | I never wanted to have much to do with my sister/brother, nor she/he with me. (R) |
| 93 | .66 | One of the most enjoyable things I remember about my childhood was playing with my brother/sister. |
| 2 | .64 | I could never rely on my brother/sister for anything when we were children. (R) |
| 80 | .59 | My sister/brother and I shared a lot of the same interests. |
| 85 | .59 | My brother/sister and I were complete opposites. (R) |
| 101 | .59 | My relationship with my brother/sister was as important to me as my relationship with my parents. |
| 25 | .58 | I never wanted to discuss my problems with my sister/brother. (R) |
| 31 | .56 | I tried to entertain my sister/brother when she/he was bored. |
| 30 | -.55 | I thought that my brother/sister was obnoxious. |

Note: (R) indicates that scoring was reversed on this item.

| | | |
|---|---|---|
| 48 | -.55 | My sister/brother was very annoying to me. |
| 29 | .54 | I hated to be separated from my sister/brother. |
| 14 | .54 | I do not remember playing very much with my brother/sister. (R) |
| 90 | .52 | My sister/brother and I had special jokes between us that others did not understand. |
| 43 | .51 | I felt proud of my brother's/ sister's accomplishments. |
| 53 | .48 | I liked to try to teach my brother/ sister new things. |
| 4 | .47 | I felt closer to my brother/sister than to anyone else in my family. |
| 23 | .42 | After an argument, my sister/brother and I never stayed mad at each other for very long. |
| 57 | .42 | I identified more with my brother/ sister than with my parents. |
| 20 | .37 | I could control my brother's/sister's behavior quite easily. |
| 5 | .34 | I was never bored if my sister/ brother was around. |
| 8 | .34 | I never wanted to be anything like my brother/sister. (R) |
| 67 | .32 | I used to feel hurt when my brother/ sister seemed to prefer playing with someone other than me. |
| 78 | .31 | I never felt responsible for my sister's/brother's misbehavior. (R) |

Note: (R) indicates that scoring was reversed on this item.

Factor 2 Identification (15 items)

| | | |
|---|---|---|
| 74 | .67 | I liked to get clothes that matched my sister's/brother's clothes. |
| 50 | .62 | I used to try to dress like my sister/brother. |
| 35 | .58 | My brother/sister and I usually shared all or most of our toys. |
| 49 | .51 | My brother/sister was about my best friend when we were children. |
| 84 | .50 | If I got scared at night, I would call for my sister/brother. |
| 12 | .48 | My brother/sister and I could practically read each other's minds. |
| 68 | .47 | My sister/brother and I played more with our friends than with each other. (R) |
| 47 | .46 | If my brother/sister got interested in something, I usually got interested in it, too. |
| 97 | .46 | My parents thought it was cute when my brother/sister and I dressed alike. |
| 18 | .45 | I preferred to confide in my parents about my worries, rather than in my brother/sister. (R) |
| 40 | .44 | I used to think that it would be fun if my sister/brother and I were twins. |
| 81 | .43 | I used to enjoy parties and social events more if my brother/sister was there, too. |
| 36 | .41 | When we were little, I liked to sleep in the same bed with my sister/brother. |
| 7 | .36 | My sister/brother and I shared a lot of the same friends. |

Note: (R) indicates that scoring was reversed on this item.

| | | |
|---|---|---|
| 58 | .36 | I used to confide in my sister/brother about issues that I would not discuss with my parents. |

Factor 3 Caretaking (15 Items)

| | | |
|---|---|---|
| 44 | .78 | I was responsible for caring for my sister/brother when my parents were away. |
| 54 | .65 | I was rarely given the responsibility of taking care of my sister/brother. (R) |
| 76 | .64 | My sister/brother took more responsibility around the house than I did. (R) |
| 34 | .62 | My sister/brother often helped me with my homework. (R) |
| 100 | .57 | I felt like more of a parent than a sibling to my sister/brother. |
| 70 | .54 | My parents allowed me to boss my sister/brother around. |
| 27 | .53 | Instead of going to my parents, I sometimes disciplined my sister/brother myself when she/he did something wrong. |
| 33 | -.53 | I sometimes felt that I was my brother's/sister's "shadow." |
| 16 | .51 | If my parent were away, I usually turned to my brother/sister for what I needed. (R) |
| 82 | -.46 | I used to think of my sister/brother as being close to perfect, and I tried to be like her/him. |
| 88 | .46 | I used to talk for my sister/brother if she/he felt too shy to talk for herself/himself. |
| 75 | -.43 | I felt much more secure when my brother/sister was with me. |

Note: (R) indicates that scoring was reversed on this item.

| | | |
|---|---|---|
| 52 | -.40 | I felt very frustrated when my sister/brother was too busy to play with me or give me her/his attention. |
| 56 | -.40 | I often let my sister/brother speak for me instead of speaking for myself. |
| 38 | -.28 | I usually ignored any advice my sister/brother gave me. (R) |

Factor 4 Hostility (17 Items)

| | | |
|---|---|---|
| 46 | .70 | My parents were always breaking up arguments between my sister/brother and me. |
| 6 | .64 | I liked to tease and make fun of my brother/sister. |
| 51 | .59 | I liked to pinch and slap my brother/sister. |
| 41 | .58 | My brother/sister and I used to hit each other a lot. |
| 42 | .55 | I sometimes borrowed my sister's/ brother's possessions and accidentally broke or lost them. |
| 24 | .54 | I can remember stealing my brother's/ sister's possessions on at least one occasion. |
| 73 | .53 | I used to like to deceive my brother/ sister. |
| 92 | .53 | I often tried to persuade my sister/ brother to do my household chores for me. |
| 13 | .52 | I have been so angry at my sister/ brother that I wished to seriously harm her/him. |
| 72 | .48 | I used to complain a lot about my sister/brother to the rest of my family. |
| 39 | .46 | My brother/sister and I rarely argued over doing household chores. (R) |

Note: (R) indicates that scoring was reversed on this item.

| | | |
|---|---|---|
| 61 | .43 | I had little reason to be angry with my brother/sister. (R) |
| 94 | .42 | I felt pleased when my parents were mad at my sister/brother. |
| 15 | .40 | I liked to try to scare my sister/ brother. |
| 17 | .40 | There was never any physical violence between my sister/brother and me. (R) |
| 9 | -.37 | I did not like to let my sister/ brother borrow my possessions. (R) |
| 19 | -.32 | I used to feel that my friends were nicer than those of my sister/ brother. (R) |

Factor 5 Rivalry (15 items)

| | | |
|---|---|---|
| 87 | .67 | I often felt upset when my brother/ sister got a new toy or clothes. |
| 59 | .66 | It seemed like my brother/sister and I were always competing for my parents' attention. |
| 99 | .66 | I frequently used to worry that one or both of my parents favored my brother/sister over me. |
| 1 | .60 | I frequently felt that my sister/brother was trying to outdo me. |
| 10 | .60 | I frequently felt intensely envious of my brother/sister. |
| 89 | .56 | I used to feel really happy when I got a better report card than my brother/sister. |
| 86 | .55 | I used to feel that my parents compared me to my sister/brother a lot. |
| 77 | .51 | I was jealous when my brother/sister received special privileges that I did not get. |

Note: (R) indicates that scoring was reversed on this item.

| | | |
|---|---|---|
| 32 | .47 | I felt that my parents treated us as individuals. (R) |
| 96 | .45 | I was concerned about whether I was more attractive than my sister/ brother. |
| 22 | .40 | I was upset if my brother/sister got off more easily than I did in terms of doing household chores. |
| 37 | .36 | My parents always treated my brother/sister and me the same. (R) |
| 71 | .36 | It upset me if my brother/sister walked home from school with friends rather than with me. |
| 62 | .34 | I tried to avoid competing with my sister/brother. (R) |
| 26 | .30 | I was pleased when my parents made more of a fuss over my achievements than those of my brother/sister. |

Factor 6 Loyalty (13 items)

| | | |
|---|---|---|
| 66 | .73 | It upset me terribly when my sister/brother and I had a disagreement. |
| 69 | .61 | It worried me when my brother/sister was ill. |
| 91 | .58 | It did not disturb me to see my brother/sister crying. (R) |
| 95 | .58 | When my parents were angry at my brother/sister, I often tried to defend him/her. |
| 21 | .51 | When my sister/brother was scared or unhappy, I used to try to comfort and cheer her/him up. |
| 63 | .45 | If I heard a compliment about my brother/sister, I was eager to share it with him/her. |

Note: (R) indicates that scoring was reversed on this item.

| | | |
|---|---|---|
| 79 | .45 | I used to worry quite a bit about my brother/sister. |
| 83 | .41 | When my brother/sister was punished for something he/she did, I felt almost as bad as if I were being punished myself. |
| 45 | .39 | I felt very upset when my brother/sister showed anger or disapproval towards me. |
| 55 | .39 | My brother/sister used to try to comfort me when I was upset. |
| 98 | .39 | It disturbed me when it seemed like my sister/brother was growing apart from me. |
| 65 | .36 | I tried hard to avoid arguments with my brother/sister. (R) |
| 3 | .31 | I used to feel that sisters and brothers should watch out for one another. |

Note: (R) indicates that scoring was reversed on this item.

# APPENDIX H

# TABLES OF MULTIPLE REGRESSION ANALYSES OF SRQ FACTORS AND SIBLING STRUCTURE VARIABLES UPON ADDITIONAL CPI SCALES

Table 41

**Multiple Regression: Predicting CPI Self-acceptance from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 1.54 | 0.11 | ns |
| Loyalty | 1 | 14.13 | 1.02 | ns |
| Hostility | 1 | 11.87 | 0.86 | ns |
| Identification | 1 | 0.002 | 0.00 | ns |
| Caretaking | 1 | 10.28 | 0.74 | ns |
| Rivalry | 1 | 58.19 | 4.20 | .04 |
| Residual | 121 | 1675.72 | | |
| Total | 127 | 1817.30 | | |

$R^2$ = .077907, n.s.

Table 42

**Multiple Regression: Predicting CPI Well-being from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 5.94 | 0.23 | ns |
| Loyalty | 1 | 23.91 | 0.94 | ns |
| Hostility | 1 | 265.29 | 10.40 | .002 |
| Identification | 1 | 39.78 | 1.56 | ns |
| Caretaking | 1 | 3.77 | 0.15 | ns |
| Rivalry | 1 | 81.74 | 3.20 | ns* |
| Residual | 121 | 3087.18 | | |
| Total | 127 | 3609.18 | | |
| | $R^2$ = .144632, $p < .004$ | | | |

$p < .10$

Table 43

**Multiple Regression: Predicting CPI Psychological-mindedness from SRQ Factor Scales**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Companionship | 1 | 0.07 | 0.01 | n.s. |
| Loyalty | 1 | 10.93 | 1 17 | n.s. |
| Hostility | 1 | 40.11 | 6.43 | .01 |
| Identification | 1 | 0.06 | 0.01 | n.s. |
| Caretaking | 1 | 0.72 | 0.11 | n.s. |
| Rivalry | 1 | 1.29 | 0.21 | n.s. |
| Residual | 121 | 754.20 | | |
| Total | 127 | 816.72 | | |

$R^2$ = .076547, n.s.

**Table 44**

**Multiple Regression: Predicting Well-being from Absolute Birth Order Variables (Sex, Ordinal Position, Family Size) and their Interactions**

| Source | df | SS | F | p |
|---|---|---|---|---|
| Sex | 1 | 17.87 | 0.63 | n.s. |
| Ordinal Position | 1 | 138.17 | 4.86 | .03 |
| Family Size | 1 | 71.69 | 2.52 | n.s. |
| Sex x Ordinal Position | 1 | 120.26 | 4.23 | .04 |
| Sex x Family Size | 1 | 60.69 | 2.14 | n.s. |
| Ordinal Position x Family Size | 1 | 8.41 | 0.30 | n.s. |
| Residual | 134 | 3808.55 | | |
| Total | 140 | 4054.74 | | |

$R^2$ = .060717, n.s.

# APPENDIX I

## TABLES OF DATA ANALYSES OF RELATIONSHIPS BETWEEN FAMILY VARIABLES AND PERSONALITY CHARACTERISTICS

**Table 45**

**Multiple Regression: Predicting CPI Dominance from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 179.28 | 1.53 | n.s. |
| Parental Loss | 1 | 271.56 | 9.24 | .003 |
| Sibling Loss | 1 | 214.06 | 7.29 | .008 |
| Residual | 130 | 3818.84 | | |
| Total | 136 | 4449.99 | | |

$R^2 = .14183$, $p < .003$

Table 46

**Multiple Regression: Predicting CPI Capacity for Status from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 38.97 | 0.64 | n.s. |
| Parental Loss | 1 | 30.14 | 1.99 | n.s. |
| Sibling Loss | 1 | 175.11 | 11.59 | .0009 |
| Residual | 130 | 1964.19 | | |
| Total | 136 | 2201.88 | | |

$R^2 = .107951$, $p < .02$

Table 47

**Multiple Regression: Predicting CPI Achievement via Independence from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 50.23 | 0.66 | n.s. |
| Parental Loss | 1 | 107.26 | 5.59 | .02 |
| Sibling Loss | 1 | 72.09 | 3.76 | n.s.* |
| Residual | 130 | 2462.23 | | |
| Total | 136 | 2685.47 | | |
| | $R^2$ = .071959, n.s. | | | |

* $p < .10$

Table 48

**Canonical Correlation: Predicting Need for Achievement (CPI Dominance, Capacity for Status, Achievement via Conformance, Achievement via Independence) From Family Characteristics**

| Predictor Variables | Correlations with Canonical Variables | Criterion Variables | Correlations with Canonical Variables |
|---|---|---|---|
| SES | .40 | Do | .90 |
| Parental Loss | .58 | Cs | .73 |
| Sibling Loss | -.64 | Ac | .30 |
| | | Ai | .44 |

| Canonical Correlations | | Num df | Den df | F | p |
|---|---|---|---|---|---|
| 1 | .41 | 12 | 344.24 | 3.02 | .00006 |

Table 49

**Multiple Regression: Predicting CPI Social Presence from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 190.46 | 1.57 | n.s. |
| Parental Loss | 1 | 57.63 | 1.90 | n.s. |
| Sibling Loss | 1 | 150.33 | 4.95 | .03 |
| Residual | 130 | 3949.04 | | |
| Total | 136 | 4353.74 | | |

$R^2 = .092953$, $p < .05$

Table 50

**Multiple Regression: Predicting CPI Responsibility from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 81.91 | 0.94 | n.s. |
| Parental Loss | 1 | 129.25 | 5.96 | .02 |
| Sibling Loss | 1 | 48.52 | 2.24 | n.s. |
| Residual | 130 | 2818.81 | | |
| Total | 136 | 3045.28 | | |
| | $R^2$ = .074367, n.s. | | | |

Table 51

**Multiple Regression: Predicting CPI Sociability from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 161.70 | 2.02 | n.s.* |
| Parental Loss | 1 | 139.09 | 6.95 | .009 |
| Sibling Loss | 1 | 54.60 | 2.73 | n.s. |
| Residual | 130 | 2602.18 | | |
| Total | 136 | 2953.45 | | |

$R^2 = .118935$, $p < .01$

* $p < .10$

Table 52

**Multiple Regression: Predicting CPI Tolerance from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 1.44 | 0.01 | n.s. |
| Parental Loss | 1 | 76.25 | 2.81 | n.s.* |
| Sibling Loss | 1 | 149.27 | 5.51 | .02 |
| Residual | 130 | 3523.40 | | |
| Total | 136 | 3736.55 | | |
| | $R^2$ = .057045, n.s. | | | |

*$p < .10$

Table 53

Canonical Correlation: Predicting Sociability (CPI Sociability, Tolerance) Family Characteristics

| Predictor Variables | Correlations with Canonical Variables | Criterion Variables | Correlations with Canonical Variables |
|---|---|---|---|
| SES | .48 | Sy | .92. |
| Parental Loss | .63 | To | .61 |
| Sibling Loss | -.53 | | |

| Canonical Correlations | | Num df | Den df | F | p |
|---|---|---|---|---|---|
| 1 | .34 | 6 | 264 | 3.30 | .001 |

Table 54

**Multiple Regression: Predicting CPI Self-acceptance from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 48.29 | 0.89 | n.s. |
| Parental Loss | 1 | 87.10 | 6.44 | .01 |
| Sibling Loss | 1 | 18.92 | 1.40 | n.s. |
| Residual | 130 | 1757.53 | | |
| Total | 136 | 1910.06 | | |
| | $R^2$ = .079854, n.s.* | | | |

* $p < .10$

Table 55

**Multiple Regression: Predicting CPI Psychological-mindness from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 55.97 | 2.31 | n.s.* |
| Parental Loss | 1 | 48.71 | 8.06 | .005 |
| Sibling Loss | 1 | 28.76 | 4.76 | .03 |
| Residual | 130 | 785.90 | | |
| Total | 136 | 904.47 | | |

$R^2$ = .131087, p .005

*p < .10

Table 56

**Multiple Regression: Predicting CPI Well-Being from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 61.35 | 0.53 | n.s. |
| Parental Loss | 1 | 55.53 | 1.94 | n.s. |
| Sibling Loss | 1 | 133.34 | 4.65 | .03 |
| Residual | 130 | 3728.36 | | |
| Total | 136 | 3954.86 | | |
| | $R^2$ = .057270, n.s. | | | |

Table 57

**Multiple Regression: Predicting CPI Intellectual Efficiency from Family Characteristics**

| Source | df | SS | F | p |
|---|---|---|---|---|
| SES | 4 | 31.66 | 0.24 | n.s. |
| Parental Loss | 1 | 58.12 | 1.80 | n.s. |
| Sibling Loss | 1 | 269.28 | 8.32 | .005 |
| Residual | 130 | 4205.39 | | |
| Total | 136 | 4555.47 | | |
| | $R^2$ = .076848, n.s. | | | |

# REFERENCES

## REFERENCES


Abramovitch, R., Corter, C., & Lando, B. (1979). Sibling interaction in the home. Child Development, 50(4), 997-1103.

Abramovitch, R., Corter, C., & Pepler, D. J. (1980). Observations of mixed-sex sibling dyads. Child Development, 51(4), 1268-1271.

Abramovitch, R., Pepler, D. J., & Corter, C. (1982). Patterns of sibling interaction among preschool-age children. In M. E. Lamb & B. Sutton-Smith (Eds.), Sibling relationships: Their nature and significance across the lifespan (pp. 61-86). Hillsdale, NJ: Lawrence Erlbaum Associates.

Adler, A. (1959). Understanding human nature. New York: Fawcett Publications.

Alexander, C. N. (1967). Ordinal position and sociometric status. Sociometry, 29, 41-51.

Altus, W. D. (1966). Birth order and the omnibus personality inventory. Proceedings of the 74th Convention of the American Psychological Association, 279-280.

Altus, W. D. (1967). Birth order and its sequelae. International Journal of Psychiatry, 3, 23-32.

Bank, S., & Kahn, M. D. (1975). Sisterhood-brotherhood is powerful: Sibling sub-systems and family therapy. Family Process, 14(3), 311-337.

Bank, S. P., & Kahn, M. D. (1982). The sibling bond. New York: Basic Books.

Baskett, L. M., & Johnson, S. M. (1982). The young child's interactions with parents versus siblings: A behavioral analysis. Child Development, 53(3), 643-650.

Bayer, A. E., & Folger, J. K. (1967). The current state of birth order research. International Journal of Psychiatry, 3, 37-39.

Becker, S. W., Lerner, M. J., & Carroll, J. (1966). Conformity as a function of birth order and type of group pressure: A verification. Journal of Personality and Social Psychology, 3(2), 242-244.

Berman, L. E. (1978). Sibling loss as an organizer of unconscious guilt: A case study. Psychoanalytic Quarterly, 47(4), 568-587.

Bigner, J. J. (1972). Sibling influence on sex-role preference of young children. Journal of Genetic Psychology, 121(2), 271-282.

Bossard, J. H. S., & Boll, E. S. (1956). The large family system: An original study in the sociology of family behavior. Philadelphia: University of Pennsylvania Press.

Bowlby, J. (1969). Attachment. Vol. 1 in Attachment and loss. New York: Basic Books.

Bragg, B. W., & Allen, V. L. (1970). Ordinal position and conformity: A role theory analysis. Sociometry, 33(4), 371-381.

Bühler, C. (1937). The child and his family. Jena: Fischer.

Burlingham, D. (1952). Twins: A study of three pairs of identical twins. London: Image.

Burlingham, D., & Freud, A. (1944). Infants without families. London: Allen and Unwin.

Carrigan, W. C., & Julian, J. W. (1966). Sex and birth order differences in conformity as a function of need affiliation arousal. Journal of Personality and Social Psychology. 3, 479-483.

Cicirelli, V. G. (1972). The effect of sibling relationships on concept learning of young children taught by child teachers. Child Development, 43(1), 282-287.

Cicirelli, V. G. (1973). Effects of sibling structure and interaction on children's categorization style. Developmental Psychology, 9, 132-139.

Cicirelli, V. G. (1975). Effects of mother and older sibling on the problem-solving behavior of the younger child. Developmental Psychology, 11 749-756.

Cicirelli, V. G. (1976). Mother-child and sibling-sibling interactions on a problem-solving task. Child Development, 47(3), 588-596.

Cicirelli, V. G. (1977). Relationship of siblings to the elderly person's feelings and concerns. Journal of Gerontology, 32(3), 317-322.

Cicirelli, V. G. (1980). A comparison of college women's feelings toward their sibling and parents. Journal of Marriage and the Family, 42(1), 111-118.

Colonna, A. B., & Newman, L. M. (1983). The psychoanalytic literature on siblings. Psychoanalytic Study of the Child, 38, 285-309.

Datta, L. E. (1967). Birth order and early scientific attainment. Perceptual and Motor Skills, 24, 157-158.

Dunn, J., & Kendrick, C. (1979). Interaction between young siblings in the context of family relationships. In M. Lewis & L. Rosenblum (Eds.) The child and its family (pp. 143-168). New York: Plenum.

Dunn, J., & Kendrick, C. (1981a). Interaction between young siblings: Association with the interaction between mother and first born. Developmental Psychology, 17(3), 336-343.

Dunn, J , & Kendrick, C. (1981b). Social behavior of young sibings in the family context: Differences between same-sex and different-sex dyads. Child Development, 52(4), 1265-1273.

Dunn, J., & Kendrick, C. (1982a). Siblings and their mothers: Developing relationships within the family. In M. L. Lamb & B. Sutton-Smith (Eds.), Sibling relationships: Their nature and significance across the lifespan (pp. 39-60). Hillsdale, NJ: Lawrence Erlbaum Associates.

Dunn, J., & Kendrick, C. (1982b). Siblings: Love, envy and understanding. Cambridge: Harvard University Press.

Dunn, J., Kendrick, C., & MacNamee, R. (1981). The reaction of first-born children to the birth of a sibling: Mothers' reports. Journal of Child Psychology and Psychiatry and Allied Disciplines, 22(1), 1-18.

Einstein, G., & Moss, M. S. (1967). Some thoughts on sibling relationships. Social Casework, 48, 549-555.

Farley, F. H., Hatch, R., Murphy, P., & Miller, K. (1971). Sibling structure and masculinity-femininity in male adolescents. Adolescence, 6(24), 441-450.

Freud, S. (1963). Introductory lectures on psycho-analysis. In J. Strachey (Ed. and Trans.), The standard edition of the complete psychological works of Sigmund Freud (Vols. 15-16) London: Hogarth Press. (Original work published 1916-17).

Galton, F. (1874). English men of science: Their nature and nurture. London: Macmillan.

Gini, C. (1915). Superiority of the eldest. Journal of Heredity, 6, 37-39.

Glenn, J. (1966). Opposite sex twins. Journal of the American Psychoanalytic Assocation, 14, 736-759.

Gough, H. G. (1968). An interpreter's syllabus for the California Psychological Inventory. In P. McReynolds (Ed.), Advances in psychological assessment (Vol. 1, pp. 55-79). Palo Alto: Science and Behavior Books.

Gough, H. G. (1975). Manual for the California Psychological Inventory (rev. ed.). Palo Alto: Consulting Psychologists Press.

Greenberg, H., Mayer, D., Guereno, R., Pislonski, D., & Lashen, M. (1963). Order of birth as a determinant of personality and attitudinal characteristics. Journal of Social Psychology, 60, 221-230.

Hare, E. H., & Price, J. S. (1969). Birth order and family size: Bias caused by changes in birth rate. British Journal of Psychiatry, 115, 647-657.

Holmes, J. (1980). The sibling and psychotherapy: A review with clinical examples. British Journal of Medical Psychology, 53(4), 297-305.

Irish, D. R. (1964). Sibling interaction: A neglected aspect in family life research. Social Forces, 42(3), 279-88.

Jones, H. E. (1931). Order of birth in relation to the development of the child. In C. Murchison (Ed.). A handbook of child psychology (pp. 204-241). Worcester, MA: Clark University Press.

Joseph, E. D. (1961). Panel report: The psychology of twins. Journal of the American Psychoanalytic Association, 9, 158-166.

Joseph, E. D., & Tabor, J. H. (1961). The simultaneous analysis of a pair of identical twins and the twinning reaction. Psychoanalytic Study of the Child, 16, 275-299.

Koch, H. (1956). Some emotional attitudes of the young child in relation to characteristics of his sibling. Child Development, 27, 393-472.

Kohn, M., & Schooler, C. (1969). Class, occupation, and orientation. American Sociological Review, 34, 659-678.

Kris, M., & Ritvo, S. (1983). Parents and siblings: Their mutual influences. Psychoanalytic Study of the Child, 38, 311-324.

Lamb, M. E. (1978a). The development of sibling relationships in infancy: A short-term longitudinal study. Child Development, 49(4), 1189-1196.

Lamb, M. E. (1978b). Interactions between eighteen-month-olds and their preschool-aged sibings. Child Development, 49(4), 51-59.

Lamb, M. E. (1982). Sibling relationships across the lifespan: An overview and introduction. In M. E. Lamb & B. Sutton-Smith (Eds.), Sibling relationships: Their nature and significance across the lifespan (pp. 1-11). Hillsdale, NJ: Lawrence Erlbaum Associates.

Lamke, L. K., Bell, N. J., & Murphy, C. (1980). Sibling constellation and androgynous sex-role development. Journal of Psychology, 105(1), 139-144.

Leonard, M. R. (1961). Problems in identification and ego development in twins. Psychoanalytic Study of the Child, 16, 300-320.

Lesser, R. M. (1978). Sibling transference and countertransference. Journal of the American Academy of Psychoanalysis, 6(1), 37-49.

Leventhal, G. S. (1970). Influence of brothers and sisters on sex-role behavior. Journal of Personality and Social Psychology, 16(3), 452-465.

Levy, D. M. (1937). Sibling rivalry. American Orthopsychiatric Association Monograph 2.

Lunneborg, P. (1968). Birth order, aptitude and achievement. Journal of Consulting and Clinical Psychology, 32(1), 101.

McArthur, C. (1956). Personalities of first and second children. Psychiatry, 19, 47-54.

Meyendorf, R. (1971). Infant depression due to separation from siblings: Syndrome of depression, retardation, starvation and neurological symptoms: A re-evaluation of the concept of maternal deprivation. Psychiatrica Clinica, 4, 321-355.

Minuchin, S., Montalvo, B., Guernez, B., & Schumer, F. (1967). Families of the slums. New York: Basic Books.

Moore, R. K. (1964). Susceptibility to hypnosis and susceptibility to social influence. Journal of Abnormal and Social Psychology, 68, 282-294.

Neubauer, P. B. (1983). The importance of the sibling experience. Psychoanalytic Study of the Child, 38, 325-336.

Nichols, R. C. (1968). Heredity, environment, and school achievement. Measurement and Evaluation in Guidance, 1(2), 122-129.

Oberndorf, C. P. (1929). Psychoanalysis of siblings. American Journal of Psychiatry, 8, 1007-1020.

Pepler, D. J., Abramovitch, R., & Corter, C. (1981). Sibling interaction in the home: A longitudinal study. Child Development, 52(4), 1344-1347.

Pollack, G. H. (1972). Bertha Pappenheim's pathological mourning: Possible effects of childhood sibling loss. Journal of the American Psychoanalytic Association, 20(3), 476-493.

Pollack, G. H. (1978). On siblings, childhood sibling loss and creativity. Annual of Psychoanalysis, 6, 443-481.

Provence, S., & Solnit, A. J. (1983). Development-promoting aspects of the sibling experience: Vicarious mastery. Psychoanalytic Study of the Child, 38, 337-351.

Ranieri, R. F., & Pratt, T. C. (1978). Sibling therapy. Social Work, 23(5), 418-419.

Rosenberg, B. G., & Sutton-Smith, B. (1959). The measurement of masculinity and femininity in children. Child Development, 30, 373-380.

Rosenberg, E. B. (1980). Therapy with siblings in reorganizing families. International Journal of Family Therapy, 2(3), 139-150.

Rosenfeld, H. M. (1966). Relationship of ordinal position to affiliation and achievement motives: Direction and generality. Journal of Personality, 34, 467-480.

Sampson, E. E. (1962). Birth order, need achievement, and conformity. Journal of Abnormal and Social Psychology, 64, 155-159.

Sampson, E. E. (1965). The study of ordinal position: Antecedents and outcomes. In B. Maher (Ed.), Progress in experiemental research (Vol. 2, pp. 175-228). New York: Academic Press.

Samuels, H. R. (1980). The effect of an older sibling on infant locomotor exploration of a new environment. Child Development, 51(2), 607-609.

Schachter, S. (1959). The psychology of affiliation. Stanford: Standord University Press.

Schachter, S. (1963). Birth order, eminence, and higher education. American Sociological Review, 28, 757-767.

Schooler, C. (1972). Birth order effects: Not here, not now. Psychological Bulletin, 78(3), 161-175.

Schooler, C. (1973). Birth order effect: A reply to Breland. Psychological Bulletin, 80(3), 213-214.

Seegmiller, B. R. (1980). Sex-role differentiation in preschoolers: Effects of maternal employment. Journal of Psychology, 104,(2), 185-189.

Sells, S. B., & Roff, N. (1963). Peer acceptance-rejection and birth order. American Psychologist, 18, 355.

Shopper, M. (1974). Twinning reactions in non-twin siblings. Journal of the American Academy of Child Psychiatry, 13(2), 300-318.

Solnit, A. J., Eissler, R. S., & Neubauer, P. B. (Eds.). (1983). Psychoanalytic Study of the Child, 38.

Spitz, R. (1965). The first year of life. New York: International Universities Press.

Sutton-Smith, B., & Rosenberg, B.G. (1970). The sibling. New York: Holt Rinehart & Winston.

Tiegel, I. M. (1974). A validation study of sibling attachment. Dissertation Abstracts International, 34(7-B), 3478.

Toman, W., & Toman, E. (1970). Sibling positions of a sample of distinguished persons. Perceptual and Motor Skills, 31(3), 825-826.

Wallerstein, J., & Kelly, J. (1980). Surviving the breakup: How children and parents cope with divorce. New York: Basic Books.

Winnicott, D. W. (1957). Mother and child. New York: Basic Books.

Winnicott, D. W. (1958). Transitional objects and transitional phenomena. In Collected papers: Through paediatrics to psychoanalysis (pp. 229-242). New York: Basic Books. (Original work published 1951).